DOCUMENT RESUME

ED 071 485 FL 003 588

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TITLE	The Thread of Discourse.
INSTITUTION	Cornell Univ., Ithaca, N.Y. Dept. of Modern Languages and Linguistics.
SPONS AGENCY	National Science Foundation, Washington, D.C.
REPORT NO	NSF-GS-3180; NSF-TR-1
PUB DATE	72
NOTE	374p.
EDRS PRICE	MF-$0.65 HC-$13.16
DESCRIPTORS	*Communication (Thought Transfer); Connected Discourse; Deep Structure; *Discourse Analysis; Generative Grammar; *Information Processing; Language Patterns; *Language Research; Linguistics; *Linguistic Theory; Literary Criticism; Paragraphs; Rhetoric; Semantics; Speech; Surface Structure; Transformations (Language); Verbal Communication

ABSTRACT

This report contains an extensive discussion of an approach to the study of discourse. Initial remarks concern arguments for studying discourse and approaches for discourse study that have been used; the author then discusses the relationship of discourse analysis and generative semantics. Language is considered on two issues: the decisions that a speaker can make regarding what and what not to say, and the mechanisms and patterns that are available to him for implementing the results of those decisions in a way that communicates with another person. The remainder of the report discusses relevant issues in this approach to the study of discourse. (VM)

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THE THREAD OF DISCOURSE

(Technical Report No. 1,

National Science Foundation Grant GS-3180)

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Preface

The project for Cross Language Study of Discourse Structures was funded in August of 1970 for a two year period by National Science Foundation grant GS-3180 to Cornell University.

Under that grant I traveled to three field locations and held workshops in which thirty-one languages were represented. The tangible results of those workshops were thirty papers submitted for publication on the topic of discourse, seventeen papers on other areas of linguistics that needed to be cleared up so that discourse studies could progress, and this report.

The most interesting result was the discovery of the overlay pattern of text organization described in Chapter Nineteen. Thurman's work on linkage and chaining (Chapter Twenty-one), Litteral's on time indexing (Chapter Three), the distinction between rhetorical and lexical relations (Chapter Fourteen), and Thurman's suggestions for decomposing texts to display their discourse properties (Chapter Six) all have broad significance.

This report is the part that could be gotten ready in the time available of a fuller discussion of discourse in language. I have included more than half of what I originally planned, and have sketched out the rest.

Collaborators in the workshops include all the authors of papers listed at the end of the preface. Most of them are field investigators of the Summer Institute of Linguistics, which is affiliated with the University of Oklahoma. The Institute provided the physical facilities for each workshop and contributed administrative support. Ivan Lowe in Brazil and Nellie Hidalgo in the Philippines lectured, Harland Kerr, Bruce Hooley, Richard Elkins, Karl Franklin, and Lee Ballard visited, and Martin Krusi, Horst Stutte, and William Hall took advantage of the workshop environment to begin papers on Chiquitano of Bolivia, Gaveao of Brazil, and Siocon Subanon of the Philippines respectively. Outside the workshops I conferred with profit with Austin Hale in Nepal and Paul Freyberg in New Guinea. Robert Litteral, a graduate student from the University of Pennsylvania, acted as my assistant in the Philippines.

This project has led to two further developments. The first is an exploration, with Ivan Lowe and Thomas Crowell, of formalisms that might be more useful than the ones current in linguistics. The second, for which continuing support has been requested from the National Science Foundation, involves looking into the tie between morphological categories and discourse structure. Categories like tense and definiteness are frequently labeled and let go; but there is evidence that they can be understood better by relating them to where they are used in discourse.

Joseph E. Grimes
Principal Investigator
July 1, 1972

Following is a list of papers produced in the workshops. Where the paper has appeared or is in the process of publication, the journal is given.

Brazil

Nancy E. Butler, Verb derivation in Terena
Thomas H. Crowell, Cohesion in Bororo discourse, Linguistics
Rose Dobson and Helga Weiss, Kayabi clause structure
Peter H. K. Kingston, Mamainde syllables
Barbara J. Kroeker, Morphophonemics of Nambiquara, Anthropological Linguistics 14:1.19-22 (1972)
Menno H. Kroeker, Thematic linkage in Nambiquara narrative, Appendix A of this volume
Ruth McLeod, Paragraph, aspect, and participant in Xavante, Linguistics
Wilbur K. Pickering, Apurina, M. Cohen, ed. Les Langues Dans le Monde
Orland Rowan, Some features of Paressi discourse structure, Anthropological Linguistics 14:4.131-146 (1972)
Mickey Stout and Ruth Thomson, Kayapo narrative, International Journal of American Linguistics 37:4.250-256 (1971)
James Wheatley, Pronouns and nominal elements in Bacairi discourse, Linguistics

New Guinea

Janice Allen, Halia sentences, Pacific Linguistics
Jerry Allen, Tense-aspect in Halia narratives, Oceanic Linguistics
John Austing, Semantic relationships in Omie
June Austing, Omie discourse, International Journal of American Linguistics
Donald Davis, Wantoat paragraph structure, Linguistics
Joseph E. Grimes, Outlines and overlays, Language
-----, Kinds of information in discourse, Kivung 4:2.64-73 (1971)
Roberta Huisman, Angaataha narrative discourse, Linguistics

Ronald Huisman, Angaataha verb morphology, Linguistics
Helen Lawrence, Location in Oksapmin, Anthropological Linguistics
Marshall Lawrence, Oksapmin sentence structure, Pacific Linguistics
Ronald Lewis, Sanio-Hiowe paragraph structure, Pacific Linguistics
Sandra Lewis, Sanio-Hiowe verb phrases, Pacific Linguistics
Robert Litteral, Rhetorical predicates and time topology in Anggor, Foundations of Language
Shirley Litteral, Orientation shifts in Anggor, Pacific Linguistics
David Strange, Indicative and subjunctive in Upper Asaro, Linguistics
Robert Thurman, Chuave medial verbs

Philippines

Seymour Ashley, A case classification of Tausug verbs, Anthropological Linguistics
Marjorie Draper, Underlying case structure in Northern Kankanay, Asian Studies
Carl DuBois, Connectives in Sarangani Manobo discourse, Linguistics
Richard Gieser, Kalinga sequential discourse, Philippine Journal of Linguistics
Ruth Gieser and Joseph E. Grimes, Natural groupings in Kalinga disease terms, Asian Studies
Joseph E. Grimes, Participant orientation, Philippine Journal of Linguistics
Donna Hettick, Verb stem classes in Northern Kankanay, Oceanic Linguistics
Lou Hohulin, Complex predicates in Keleyi Kallahan, Pacific Linguistics
Richard Hohulin, Cohesive organization in Keleyi Kallahan, Pacific Linguistics
Betty Hooker, Cohesion in Ivatan, Asian Studies
Virginia Larson, Pronominal reference in the Ivatan narrative, Philippine Journal of Linguistics
Helen Miller, Thematization in Mamanwa, Linguistics
Jeanne Miller, Semantic structure of Mamanwa verbs, Linguistics
Mary Rhea, Remarks on prefocus in Sarangani Bilaan, Philippine Journal of Linguistics
Louise Sawyer, Aspect in Amganad Ifugao, Anthropological Linguistics
Anne West, The semantics of focus in Amganad Ifugao, Linguistics
Hazel Wrigglesworth, Ilianen Manobo narrative discourse

I also wrote two other papers unrelated to discourse during the workshops:

Review of Corstius, Exercises in computational linguistics, Language 47:4.975-978 (1971)
Huichol, M. Cohen, ed. Les Langues Dans le Monde

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CHAPTER ONE
WHY DISCOURSE STUDY?

Linguistics started small, concentrating on sounds and words before phrases and sentences. There is always excitement in new ideas about those areas, and the subject matter has always shown itself tough enough to be challenging. A linguist could fill a lifetime without needing to ask whether the framework he worked in might also extend to take in larger segments of verbal behavior.

Now that some of us are trying to expand our horizons beyond the sentence to paragraphs and even entire discourses, we seem to draw two kinds of reactions. One is encouraging and a little wistful. Colleagues see that linguistics can go in that direction and wish they had time to join us in finding out how. The other reaction is mildly surprising for a field in which one or another set of young Turks has nearly always held the center of the stage: it is suggested either that we can't work on discourse, because it has been convincingly demonstrated that such work is impossible, or that we shouldn't, because everything beyond the sentence is the fiefdom of the rhetoricians, or the critics, or the logicians.

Since I take it as a principle that the way to sell soap is not to waste time arguing that Brand X won't get the dirt out, but rather to show the way your own product does its job, I propose no lengthy critique that will demolish one by one the negative arguments about discourse.

In Section One of this chapter I will touch lightly on the criticisms I am aware of, then go on in Section Two to the reasons why I think it is not only possible but also downright enlightening to study discourse. The third section of the chapter will sketch some possible consequences of discourse study.

1. WHY LINGUISTS SHOULD NOT STUDY DISCOURSE

The first thing that has kept many linguists away from the serious study of discourse is probably the magnitude of the subject matter (Langendoen 1970.4). Like the Dutch boy with his finger in the dike, they look at how much they have to cope with and get the understandable feeling that the whole wild sea is out there. Beyond the ordered paradigms and mildly controversial counterexamples of sentence grammar they see business letters, conversations, restaurant menus, novels, laws, nonverbal behavior, movie scripts, editorials, without end. They are right. Yet there are ways of bringing a good deal of this under control, as I hope this book will show.

Totally apart from the question of magnitude there are limitations built into linguistic theory that have made it difficult to work on discourse from inside the discipline. The most obvious of these is the theoretical restriction of linguistics to relationships within the sentence. Bloomfield (1933.170), for example, in defining the sentence as 'an independent form, not included in any larger (complex) linguistic form', clamped a lid on linguistics that few have tried to lift. Dik (1968) rightly criticizes the effect of this limitation on our understanding of the kinds of relations between sentences that have to be assumed in order to account for things like conjunctions.

Chomsky (1957, 1965) not only perpetuated Bloomfield's restriction uncritically, but made it even stronger by having the sentence, or something very much like it, be the distinguished symbol of the kind of grammar that can be constructed as a formal system. His statements about the aim of grammar being to account for all the sentences of a language and only the sentences of a language had a similar effect.

Chomsky's theoretically motivated view said that as far as linguistics is concerned no relationships beyond the sentence exist. Yet ignoring them has had odd consequences. In Katz and Fodor's important 1963 article on semantics, for example, they were forced to adopt the fiction that in order to make a semantic interpretation of a text, all the sentences of the text have to be conjoined into a single supersentence, which is then amenable to interpretation by projection rules. Postal also (1964) has to exclude some of the information carried by pronouns from his linguistic analysis, although he points out correctly that a good deal of the information necessary for what he has to say there about pronouns is contained within the sentence in which they occur.

One cannot criticize Bloomfield, Chomsky, or anyone else who has operated like them for making a clear distinction between what they choose to talk about and what they lay aside. Restriction of a field is essential for any kind of scientific thinking. If someone wishes to focus on what happens within certain bounds, anyone else who accepts the rules of the game has to agree to those bounds. Trouble comes only when we are given to understand that those are the only reasonable or possible or interesting bounds, and he who would disturb them is disrupting the peace of the kingdom. In our discipline we do this by invoking the name of Linguistic Theory, presented more as an eternal verity than as the way some eminent and generally sensible person happens to look at things at the moment. Frankly, at the time Bloomfield wrote, sticking to the sentence was probably the wisest thing he could have done. It gave him and those who came after him breathing space to get a grasp on a broad range of phenomena like word structure and the lower reaches of phonology. Later on the limitation to sentences permitted a thorough classification of patterns within phrases and sentences. In the same way, Chomsky really needed a restricted field within which to work out the consequences of his ideas about the formalization of grammar. But now that we have a grasp both of the classifying side of grammar and of its expression in the form of generalizations within a formal system, it is high time to make room for less narrow limitations.

A different reason for urging linguists to hold back from discourse is that the kinds of relationships that are involved once we go beyond the sentence are different from those that operate within sentences (Kelkar 1970). For example, it is often asserted that stylistic relationships have little in common with the relationships of ordinary grammar, that perhaps they are a statistical property of speech that linguists cannot deal with directly. In the opinion of others style has an intangible nature that cannot be approached with the combinatorial tools of linguistics. What is overlooked should become plain later in this book: First, there are perfectly straightforward combinatorial relationships that operate in discourse, and second, no matter what is meant by style, the problem is just as prominent inside sentences as it is anywhere else in language.

To maintain that linguists should not work with complete discourses because that is the province of rhetoric and literary criticism is a little like saying that physicists should not work with chemistry or that information scientists should have nothing to do with law. As a matter of fact, chemists and lawyers have both profited because those outside their discipline applied the concepts of a different field to it; there is no reason why both rhetoric and literary criticism should not be better off as a result of linguists having tried their tools in those areas.

2. WHY LINGUISTS SHOULD STUDY DISCOURSE

As I suggested in the last section, linguists can and should work with discourse. None of the reasons given why linguists should leave discourse alone is more than a tactical barrier. Those reasons impede linguistic study mainly because we do not yet have much experience in finding our way around them.

For example, the magnitude of the subject matter, while vast, is not impossible to cope with. Progress in scientific thinking always implies distinguishing between generalizations that can be broadened on the one hand and kinds of complexity that can be left out of consideration on the other. Certainly in fields like mathematical biology, genetics, and astronomy, numberless observed phenomena have been successfully brought into the scope of a relatively small number of generalizations. Kemeny discusses optimistically the application of mathematical models in the social sciences even where problems 'are much too large to get explicit solutions for them and yet the number of parts is not large enough, nor are they homogeneous enough, to be able to pass to the limit'. In discussing optimal sequences of decisions that involve a large number of factors, Bellman starts from the working assumption that at any point in such a sequence the number of parameters that have to be taken into consideration is very small. The answer to complexity is not to give up the whole thing, but to find generalizations and simplifying assumptions that put their finger on the essential factors behind the complexity.

Suppose we were to look at what has already been accomplished in linguistics by taking the point of view of a hypothetical elf who is a good phonetician but who knows nothing of the kinds of generalizations linguists have made since the times of the Hindu grammarians. We could imagine how he might quail at the hopelessness of ever doing anything about the mass of phonetic data that a linguist collects in an ordinary working day. He knows, after all, that he is dealing with sequences of motions in a many-dimensioned continuous space, and that the exact correspondence even between two successive utterances of what is supposed to be the same word are rare. Yet, because we non-elvish linguists have evolved a conceptual framework that takes in all this complexity, it no longer bothers us. We are even tempted (wrongly) to regard the study of phonological systems as the most cut and dried part of linguistics. Where discourse is concerned, however, we still feel in the position of the elf; we have not yet come up with generalizations that can cope with the magnitude of the subject matter. I suggest that such generalizations are possible, and that we are already on the track of some of them.

As mentioned, some of the relationships that we find between sentences are the same as those we find between elements of a single sentence (John Austing ms). The first consequence of this is a redefinition of the notion of grammar that does away with its traditional limitation to sentences. I personally prefer to symbolize this change of scope by choosing a psychologically neutral starting symbol such as F for 'form' to represent the distinguished symbol in a formal grammar.[1]

---

[1] Substituting one symbol for another in a formal grammar does not change the grammar, of course. A formal grammar beginning with S is perfectly capable of being developed into a discourse grammar rather than restricted

to a sentence grammar. But it is linguists' secondary and even tertiary responses to the idea of grammatical systems that seem to keep the lid on their thinking. Reshaping of perspectives, in linguistics as in politics, is aided by switching symbols.

Relationships that I have characterized as belonging to outline-like structures (ms) are well recognized in sentences, where statements of constituency based on the partitioning of strings are the backbone of the grammatical tradition. Pike (1954.33,57) anticipated discourse studies in showing how the notion of constituency applies from within the word clear up to the 'behavioreme', a major unit with a culturally recognizable beginning and ending on the one hand and internal structure on the other. His characterization of a discourse as a verbal behavioreme is still as good for getting things started as anything we can think of, since it emphasizes that discourse, like the sentence in the older grammars, is a primitive notion that is not definable from within the system.

Although the field of rhetoric is independent of linguistics, many of the relationships rhetoricians talk about can be formalized quite well as constituency grammars. The first example of this that came to my attention was Daniel P. Fuller's Inductive method of Bible study (1959), which applies rhetorical concepts to exegesis in such a way as to parse texts in a tree representation, sometimes going down as far as relationships among elements of a sentence, but also uniting major segments of texts in terms of the same relationships.

This rhetorical approach, incidentally, gives an analysis of a text that is much more like that of a modern propositional grammar (Langendoen 1969, Frantz 1970) than it is like a pure constituency grammar like Longacre's (1968). The rhetorical structure consists of underlying relationships --generalization and example, say--for which there is explicit but indirect evidence in the output form itself.

At the same time, the organization of a text above the level of the sentence has more to it than can merely be extrapolated from relationships within sentences. It is for this reason that I have distinguished between lexical and rhetorical predicates for a propositional model of discourse. Rodgers, writing for a College Conference of Composition symposium on the sentence and the paragraph (1966), criticized the work of Christensen and Becker on paragraph structure as being nothing more than 'extrapolations from the sentence'; but he was only half right. Some relationships on which paragraphs are built can apply at any level of constituency including between words within a sentence; only a few like those expressed by therefore do not seem to have a place in sentence structure. The important point for discourse studies is what John Austing documents for Omie (ms): each relationship has several different forms of expression, depending on what things are being related, and relationships that have distinct expressions in some contexts may have identical, ambiguous expressions in others.

Gerald A. Sanders has gone a step beyond simply saying that the familiar relationships of sentence grammar apply on up the line. His claim, with which I agree, is that a sentence grammar will not work unless it is part of a discourse grammar, because certain factors are needed for the understanding of elements in sentences that are not available within those sentences themselves but only elsewhere in the discourse.

A number of concepts have been developed specifically for the study of discourse. Although from one point of view it could be argued that these are relationships that are different in kind from the ones linguists work with in sentence grammars, it is important to notice that they all relate to familiar concepts in grammar rather than being totally from without. Among these are the notions of kinds of information, participant orientation, information structure, thematization, clause permutation, and variable frequency rules, all of which are discussed later in this book.

3. THE USE OF DISCOURSE STUDIES

Curiosity is, of course, adequate justification for studying anything, even discourse. Nevertheless, discourse study does seem to have some implications in other areas. The most obvious is the likelihood that discourse studies will require a reshaping of linguistic theory, certainly by extending its scope if nothing else. H. A. Gleason, Jr., reported to me in conversation that when he worked out both a sentence grammar and a discourse grammar of Kâte of New Guinea, the discourse grammar, which included everything in the sentence grammar as well, contained fewer irregularities and was in some sense simpler. It is possible that the closure of grammar on discourse, as Sanders maintains, will round off our view of language in a much more integrated way than can be achieved by truncating grammar at the sentence.

The implications of discourse study for language teaching, while probably not a primary concern for first year language textbook writers (though Willis and Agard, 1941, take it into account in their discussion of Spanish tenses), are nevertheless there. One can no more string sentences together at random in another language than he can in his own. Certainly in intermediate and advanced level language courses, and in the study of literature, the results of discourse study should come to be a part of the picture (Gleason 1968).

Young, Becker, and Pike (1970) have already attempted to put the results of their research on discourse into the teaching of composition. In the area of Bible translation, which in some ways is very close to composition, Hollenbach (1969), Beekman (1970), Frantz (1970), and Kathleen Callow (1970) have made suggestions based on discourse oriented models.

One can only speculate about the effect linguistic studies of discourse might have in the field of criticism, granted the traditional lack of interaction between them. I think that as linguists we can at least double check the critic in matters of structure. It also seems possible from within linguistics to pin down certain aspects of the coherence of a text, and even to show why some passages are incoherent. This is not the same as being able to say whether a particular passage is clear or not, though again linguistics may be able to raise a warning flag and tell the critic (or the writer when he is criticizing his own draft) that there are obstacles to clarity in the road ahead. Some aspects of style seem to be approachable from within a linguistic view of discourse (Grimes and Glock 1970). By no means can everything stylistic be broken to our bridle, but neither are all the horses wild.

Illustrations have already been given of inputs from the field of exegesis to linguistics. This looks like a two-way street. The rules of evidence in exegesis embody what can equally well be thought of as linguistic relationships, while the treatment of those relationships as part of a linguistic system should in turn help remove some of the fuzziness from exegesis.

One area of exegesis in which I am not aware that there has been interaction with linguistics, but where there could be, is in the interpretation of law. Reading the law is essentially an exegetical process, deciding what it says and what it excludes. Writing laws involves using language that seems designed to keep things from being said too clearly, but using it in such a way that the necessary lines of demarcation are unambiguously drawn. How parallel legal exegesis is to, say, Biblical exegesis or historical exegesis (Boeckh 1886, English translation 1968) bears looking into.

Now that information retrieval is taking on greater importance because of the proliferation of circulated information, linguistics may have something to contribute to it through discourse studies.[2] In the first place, studies of discourse seem to show that the essential information in some discourses is localized, which implies that for retrieval it might be possible to specify parts of the discourse that do not have to be taken into account. There is definitely a pattern of organization of information in any discourse that can be recognized and should therefore be explored for its usefulness in retrieval; for example, Halliday's notion (1967b) of the distribution of given and new information.

It has always been hoped that grammar would contain clues to semantic structure. In a way it does, but those clues are still no easier to read than are phonological clues to grammatical structure. Taken together with other discourse signals, however, it might prove possible to disambiguate the results of mappings from semantics to grammatical structure sufficiently well that a certain amount of semantic parsing might be derivable from a grammatical analysis.

---

[2] Information scientists, it should be said, are not standing by waiting for linguists to show them how to do their job. Gerard Salton, for example (1968.196-199), found that by using syntactic analysis he got retrieval results that were essentially no better than the ones he got by bypassing all considerations of linguistic structure completely. I would like to see research done on this Salton Effect in the expectation that we would learn something about linguistics through it.

There are also clues to semantic structure that do not fit into the notion of grammatical structure directly but which are still recognizable. Word collocations are one such clue; patterns of pronominal reference may also fit here.

Linguistics should be able to come up with a theory of abstracting. This theory should account for varying degrees of compactness in abstracts. For any degree of compactness it should give a basis for saying whether or not an abstract is _complete_ in that it includes everything that should be in an abstract of that degree of compactness, and whether it is _concise_, in that it includes nothing that is superfluous. It should also be able to distinguish a non-abstract that sounds like an abstract from a real one.

Connected with abstracting is the problem of retrieval indexing. This is a matter of providing a representation of the meaning of a discourse that is easy to find and work through, and that somehow interlocks with the text itself in such a way as to facilitate retrieval. Specification of key terms is one approach that is commonly used; it involves not only the identification of those terms in a text that are truly its key words, but also the formation of thesauri to identify semantic neighborhoods of terms.

CHAPTER TWO
DISCOURSE SO FAR

This chapter is a quick review of ideas in linguistics and related fields that have fed into the formation of the views I present later in the book. I have not gone to any lengths to trace these topics out, because that is material for several books in itself.

1. RHETORIC

In Western culture the tradition is a long one that insists that there is a right way and a wrong way to put arguments and other kinds of discourses together, and that the right way can be taught. This attitude has given the field of rhetoric a prescriptive tone for two and a half millenia: say this; don't put those things together; form the rhythmic pattern thus. Rhetorical works tend to be schoolbook treatises, not descriptive statements associated with science and research. Yet this is the area where discourse phenomena have traditionally been brought up and discussed, to the extent that a very good start on the study of discourse patterns in any of the major European languages could probably be made simply by bringing together systematically all the things that rhetoricians have said that speakers of that language either should or should not do.[1]

---

[1] Linguists today would point out that the gap between what rhetoricians and grammarians in the prescriptive tradition say should be done and what accomplished speakers and writers do is always noticeable. My point,

however, is that the rhetoricians raise questions that need to be discussed in the analysis of discourse patterns, not that they dispose of those questions in a uniformly satisfactory way.

Linguistics can, I think, go beyond the insights of rhetoric in its traditional form by providing a language independent framework within which the rhetorical patterns of each language fit as special cases. Insofar as linguistics explains language as well as describing it, it also has something to say about what various rhetorical phenomena contribute to the process of communication, about the reason why they are there.

Classical rhetoric is epitomized by the work of Aristotle whose Rhetoric contains acute observations about the structure of discourses that are aimed at changing other people's behavior, and later by that of Quintilian and Cicero. The ancient sophists, some of whom were Aristotle's contemporaries, have usually been cast on the side opposite that of the angels because Socrates caught them out on the philosophical worth of their arguments. While we side with Socrates on the larger question, it is perhaps good to remember that men like Prodicus of Ceos and Gorgias of Leotini did at least pay attention to the forms and techniques of discourse construction. In the so-called Second Sophistic Period of the second to fourth centuries A. D. Aristotle's structural categories of speech were set aside (Chase 1961).

The medieval trivium combined rhetoric with philosophy and grammar as the standard course of instruction. Here the object was not to teach effective communication in the pupil's native tongue, but rather in Latin as the international vehicle. The models were found in the writings of medieval writers rather than in the literary but non-Christian Latin of the classical period, so that notions of innovation and exploitation of the full resources of the language were marginal.

Rhetoric now has split into composition, or the construction of written discourses, and speech, or the construction and delivery of oral discourses. In both there is the attempt to force certain aspects of discourse structure to the pupil's attention, to make him accustomed to working with time-tested models rather than stringing what he has to say together in a jumble. Rhetoric at its best tries to teach the pupil to exploit the possibilities the language gives him. Nowadays this is carried out more fully in creative writing and advanced composition than it is in speech. Academic work is focused on writing, while creative speaking is heard of more often in Dale Carnegie courses and Toastmaster's Clubs.

The do's and dont's of the prescriptive tradition are still the watchword of rhetoric; but it is becoming more accepted that the models to be followed are not the deductively fabricated dicta of the rhetoricians, based on logic or principles of usage, but rather the accepted writers themselves, regardless of the reasons the rhetoricians or the authors themselves might give for why a particular thing is said in a particular way.

My impression is that most of the points taught in modern rhetoric of writing or speaking are still taught mainly by osmosis. It is possible that by developing a general scheme that accounts for different patterns of expression we might eventually be able to present a rhetoric based on what is known about the nature of language. Young, Becker, and Pike (1970) have attempted this, and the outlook is promising. Vast numbers of students are exposed to writing courses in high school and university; yet an extremely small proportion of those who go into business and the scholarly fields can write an intelligible paragraph.

It would therefore be no waste of effort to explore further what a linguistic understanding of discourse could do as a basis for a new prescriptive approach. At the same time, I find insights that contribute to discourse linguistics coming from people who are primarily skillful practitioners of the art of teaching writing, yet whose knowledge of linguistics itself precludes their making the kind of systematizations a linguist would make. They are doing something right, and linguists need to find out why it works.

2. CRITICISM

Literary criticism has never been noticeably close to linguistics, yet the critic and the linguist who works on discourse react to some of the same patterns in language. For example, the notion of literary structure seems to be handled in similar ways by critic and linguist. The critic asks what the structure of a literary work contributes to the total effect, more or less taking it for granted that he knows what the structure is. The linguist, on the other hand, is interested in the range of structures that are available, the signals that identify them, and the scope of what a given structure can be used to express. He is also interested in the structure of discourses that the critic might not even look at: a conversation at a party, for example, or a description in the Sears, Roebuck catalogue.

With the publication of Propp's Morphology of the Folktale in English in 1958 another aspect of structure came into view. Propp, followed by Alan Dundes (1963, 1964), analyzed the plots of folk tales in a way that George Lakoff, in a paper read at the Summer Meeting of the Linguistic Society of America, pointed out could be generated by a very simple grammar. There have been questions raised about whether this structure, which seems to characterize not only the Russian fairy tales Propp worked with but also such disparate things as Westerns and scientific papers, is linguistic at all, or merely represents a kind of psychological template imposed on nearly anything to make it sound interesting (Grimes and Glock 1970). June Austing, however, finds that for Omie (ms) some uses of the transitional particle iae are accounted for best on the assumption that the speaker is aware of a transition from one segment of a plot structure to the next.

Some other points that seem to be relevant in criticism have their counterparts in discourse theory: characterization, viewpoint, presuppositions, diction, and lexical organization, to name some that seem most easily accessible. Characterization involves providing information about a character, either by talking about him descriptively or by reporting selected actions he performs. This information must be given in such a way that when the character comes to do something that has particular significance in the plot, it will be then be plausible for him to do it because it is consistent with what else is known about him. Linguistically this is a constraint on the presentation of identificational information and background in relation to action information. Characterization also has the sense of establishing empathy between the hearer or reader and a character, and in that sense depends heavily on the richness and accuracy of the speaker's assessment of who the hearer is and what his background is. Technically it is possible for the speaker's perception of the hearer to be embodied in the notion of the performative, discussed in Chapter 3.

The spatial and social viewpoint from which an action is told is well known as a trouble spot in criticism. 'The author fails to show us the world through Marcy's eyes', 'it is hard to tell whose side he is really on', 'the payoff seems to hinge on the hero's knowing about Burlington's tendency toward alcoholism, but there is no conceivable way presented by the author by which he could have found this out'. Discourse studies have already uncovered patterns of spatial viewpoint (H. Lawrence, ms.) that permit considerable complexity, yet a complexity that is totally different from that of, say, the handling of viewpoint in Conrad's Lord Jim.[2]

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[2] The term 'viewpoint' has two uses: (1) How the author or speaker looks at life, in the sense of his philosophy, and (2) How the author or speaker looks at a particular scene, in the sense that he views it either as a whole--the so-called omnicient viewpoint--or in terms of the way one of the participants sees it, or in terms of the way a nonparticipating observer sees it. In the study of discourse the second use comes up constantly. The first use

may be in an area in which a linguist cannot operate as a linguist, but where the critic comes into his own.

The problem of presuppositions comes up both in literary studies and in discourse theory. 'Writing down' and 'writing up' are cases in which the writer misjudges the reader in making his assumptions about what the reader already knows. In the first instance he tells the reader things that he already takes for granted; in the second he leaves the reader behind by skipping essential points. The study of presuppositions not only involves what the speaker expects the hearer to know in general, but also the development of presuppositional complexes within a text, where the way the speaker expresses himself reflects what he thinks the hearer has gotten clear from what he already said (Weizenbaum 1967).

Diction, the choice of the right word in the right place, partially reflects whatever presuppositions the speaker imputes to the hearer at the moment. Part of it appears as a gradient going from specific expression to more general expression for the same reference throughout a segment of text. The tendency away from specific expression is balanced off by a tendency to overload the hearer's memory when general terms for several different things become easy to confuse, and also by the need in some kinds of texts to maintain a certain level of novelty and spice. Another factor tends to be more pervasive: the effect of the situation of speaking on the appropriateness of alternate forms of expression.

The whole problem of how a speaker's internal lexicon is organized and how that organization agrees with that of the hearer is of interest to the student of discourse. It is also of interest to the critic, most notably when a discrepancy in that organization introduces a bar between the writer and the reader. Some writers are said to have a private vocabulary, others to be highly experimental in their use of words, others to use symbolism that we cannot penetrate; it all seems to come back to the comparability of different people's lexical systems. In another direction, psychologists have used crude measures of lexical structuring like word association and the semantic differential to get at abnormal mental states in a way that does not seem too different from a critic's feeling that, say, 'Zabrowski's incessant reference to milk bottles in his metaphors for nearly anything unpleasant make us wonder if he is reporting the way an average Eastern European sees things or if he is projecting his unhappy years on a dairy farm on the rest of the world'.

Source criticism and its derivatives have been practiced, in my opinion, with relatively little reference to finding out what points of structure actually are invariant in a particular person's pattern of usage, yet serve to discriminate his works from those of others. The points from which proof is derived tend to be things that are easy to count, without any normalization to take care of observable effects of style, genre, or subject matter. Having done this kind of thing myself within extremely broad statistical limits (Grimes 1963) I feel it is legitimate to engage in this sort of counting in order to get a rough approximation to the notion of similarity; but I would insist that no theory of source criticism that is realistic from the point of view of discourse has yet been propounded. The idea of parametric predicates (Grimes and Glock 1970) may have implications for source criticism.

Ideally the factors on which a critic bases his judgment ought to be built into a writer before he starts writing. To the extent that they can be specified linguistically, I see no reason why they cannot be taught. There is a sense in which parts of this book depend on observations made not only in teaching writing to freshmen, but also in specialized teaching on the short story, the novel, and expository and argumentative prose. Here, however, the emphasis is on putting things that teachers of composition know into a systematic framework; any of their expertise that I cannot fit in readily has been left to one side for the present. Perhaps it can be incorporated in the next model.

3. EXEGESIS

In this section I discuss primarily those aspects of discourse that have come to light in the area of Biblical studies, with which I am considerably more familiar than with legal or historical exegesis. The standard exegetical question concerns the way factors external to a text influence the content and diction of the text. The idea seems to be, put simply, that once those factors are written off, the remainder represents the sense of the text in a more abstract, general, and therefore more applicable form. The factors themselves relate to the communicative situation, the lexical and rhetorical resources of the language itself, and the reasons why the particular text is put together the way it is.

The area of exegesis generally labeled 'introduction' comes close to being a specification of the performative elements of a text. Here it is customary to discuss authorship, the audience to whom the text was directed, and the historical setting, both in terms of the culture of the period (for example, Edersheim 1883 or Conybeare and Howson 1860) and the specific local situations that called forth the text.

Studies of authorship involve not only who might have written a work, but also, assuming it was a particular person, what his personal experiences up to that point were and where he must have been. Statements like 'it is less plausible to assume that the author of Hebrews had been involved in the actual temple ritual in Jerusalem than it is to assume that his familiarity with those rites was from a distance and so was couched in the terms of the Pentateuch' illustrate the kind of working back from the text itself to deductions about the person who formed the text that is characteristic of exegetical method. Similarly structured arguments concerning the audience rather than the author appear in commentaries on the Epistle to the Galatians (Lightfoot 1892, Burton 1920), where it is uncertain just who the Galatians were to whom the epistle was directed, and knowing who they were seems to influence how some statements in the epistle are to be taken. In terms of discourse theory, these studies are parallel to my deduction that a certain Saramaccan text had to have been uttered in Paramaribo, based on an analysis of the pattern of distribution of 'come' and 'go' verbs (Grimes and Glock 1970).

In Biblical lexicography the problem of semantic structure in general has been raised in ways that have linguistic implications even though they are not usually phrased in linguistic terms. Studies of the use of a particular word in different contexts by a particular individual, or by a group of individuals, are parallel to the tracing of lexical idiosyncrasies referred to in the section on criticism. Barr, in his Semantics of Biblical language (1961, see my review 1963) makes a distinction between text- and usage-based lexicography and etymologically-based lexicography that has implications for any semantic study. The influence of grammatical position and form, and to a certain extent the influence of position in a text, on the meaning of a lexical item, are traced carefully in, for example, the Arndt and Gingrich (1965) entry for pistéuō.

Daniel P. Fuller's characterization of the recursive relations that link both clauses and the textual units formed by linking clauses (1959, note also Ballard et al. 1971 and Grimes ms) has been a major stimulus to this study. It has shown that the grammatical trees that characterize sentences can be extended upward to groups of sentences, without essential discontinuity, as is exemplified in John Austing's paper on Omie (ms). Although I feel that grammars based purely on constituency relations, even beginning with semantics, have certain inherent limitations, Fuller's work shows that if one is willing to set aside those limitations, a tree representation of text structure can be enlightening.

Ethel Wallis's study of the structure of the four gospels (1971) illustrates the kind of contribution to exegetical studies that can be made by a person who thinks linguistically. Although her analysis does not fit any of the models of discourse that we have yet, and so cannot quite be put forth as an example of high level linguistics, it appears nevertheless to be linguistically motivated on the one hand and exegetically useful on the other.

4. LINGUISTICS

So far the greatest attention to discourse within the field of modern American linguistics has been paid by scholars of the so-called tagmemic school, which developed in the middle 1950's under the stimulus of Kenneth L. Pike (1954). Elson and Pickett's textbook (1962) and the work of Robert E. Longacre (1964) furthered the work of the school, which is summarized in an article by Pike (1966).

In my opinion Pike's most fundamental contribution to discourse studies was his insistence that certain chunks of human behavior exist and can be documented. They are recognizable to those who participate in them, and often to bystanders who understand the cultural systems involved, as having a definite beginning and end. Behavior that is characterized thus by closure is Pike's starting point for the analysis of both verbal and nonverbal behavior. The behavioreme, as he calls such a segmentable chunk of behavior, has an internal structure, so that successive segmentations of the behavioreme lead to the units of a grammar, again either verbal or nonverbal (as exemplified by Bock's analysis of cultural conceptions of space and time, 1962).

Since 'discourse' is a primitive term in the notional system I build up in this book, it is not possible to give a strict definition of it. Nevertheless, Pike's notion of discourse as a verbal behavioreme is a better starting point than any other I know of for communicating what a discourse is. Like any other behavioreme, it is recognized by the culture as an entity with a beginning and an ending, and has an internal structure. Even when it is not immediately obvious to an analyst what the beginning and ending signals are or how the internal structure fits together, it is possible to find particular discourses for which corroboration of discreteness can be gotten from speakers, and use that evidence to build general models of discourse in such a way that apparently dubious cases are seen to be special instances of some model, just as linguists do for everything else in language.

From the very beginning Pike pointed out the implications of the behavioreme concept for studies of discourse. James Loriot seems to have been the first to attempt to work this out on a large scale in a 1958 manuscript which unfortunately was not published until much later (Loriot and Hollenbach 1970). Pike's ideas were worked out in the area of rhetoric by Alton Becker (1965, Young, Becker, and Pike 1970), and in application to various languages by Loos (1963) and in doctoral dissertations by Bridgeman (1966), Wise (1968), and Powlison (1969). Pike gave a programmatic statement of his view of the way discourse grammars might be written in a 1964 article.

Although a formal theory of reference has been no more prominent in tagmemics than in any other American brand of linguistics, Pike and Ivan Lowe did work out systematic relationships between pronouns and their referents for the case of embedded quotations, with an elegant and exhaustive solution that is quite atypical of attempts to apply mathematical models to language (Pike and Lowe 1969, Lowe 1969). Lowe then worked with Mary Ruth Wise on applying a similar model to sequential pronominal reference in a text, with results that will be given in Chapter 9 (Wise and Lowe (1972).

Although most of the early work of the Pike school was directed toward the analysis and cataloguing of output forms of language (Postal 1964) without much greater attention to the semantics that lay behind those forms than that which could be conveniently embodied in the labels of tagmemes, Pike did foreshadow the development of case grammar, so important in current work on discourse. An article by Janette Forster (1964), written under Pike's guidance, shows the emergence of a notion of 'situational role', the part someone plays in an action regardless of how it is reported, as opposed to 'grammatical role', the place that participant fills in the most immediately apparent grammatical structure. Donna Hettick's study of verb stem classes in northern Kankanay (ms) carries this idea a good deal farther, putting emphasis on how the tightly constrained grammatical structure serves to express a highly flexible system of semantic distinctions.

Robert E. Longacre has contributed heavily to the literature on discourse. In keeping with the tagmemic tradition of surface grammars based on partitionings of classes of strings, his earlier work was devoted largely to classifying the discourse patterns he found; but more recently he has also moved in the direction of including semantics. His major volume to date is based on studies of languages of the Philippines (1968), and a similar volume is in preparation on languages of New Guinea. His semantic emphasis appears in Ballard, Conrad, and Longacre (1971). The Philippines volume is also significant because in it he begins the development of a typology of discourse features.

The stratificational school of linguistics, originated by Sydney Lamb (1966), is free from inherent limitations to the sentence. I have drawn heavily on the work of H. A. Gleason, Jr. (1968) and his students (Taber 1966, Cromack 1968, Stennes 1969) in regard to the notion of different kinds of information that appear at various places in discourse and how they are related to the forms that appear in text. Furthermore, Gleason has made a major contribution in suggesting how the text of discourse might be represented as an aid both to discovering and to displaying interesting linguistic relationships. While discovery of relationships is not particularly germane to the presentation of those relationships in a grammar that is fully worked out, as Chomsky has made clear (1957), at the stage where we do not yet know exactly what it is we expect to find, anything that helps us see patterns as a whole is an advance; and the work of Gleason and his associates seems to me to be just such a contribution.

In Europe, where scholars do not appear to have felt so strongly as in America that the sentence is the last frontier of linguistics, linguists associated with the Linguistic Circle of Prague investigated what I am calling information structure and thematization in a productive way. Chafe (1970) gives a resume of their work, but I sense that it is colored by his judgment that thematization and information structure are both concerned simply with the introduction of new information. A much more valuable summary of studies made on the Continent is embodied in Halliday's three articles on transitivity and theme (1967a, 1967b, 1968), on which I have drawn heavily in Chapters 19 and 21. I have found Halliday's work extremely productive in the field, though I observe that most readers find it hard to follow. Since I think what Halliday says ought to be more widely available, I attempt to restate it in a form that is easier to comprehend in Chapters 19 and 21.

Generative transformational grammar of the Chomsky school has been reluctant to peer out over the boundaries of the sentence. Nevertheless, especially in the area of reference, it has operated under the assumption that some information has to be available from outside the actual productions of the grammar. This assumption, as I hope to show, is not necessarily incompatible with any theory of the generative transformational variety; but it does imply a form of theory that looks rather different from today's standard brands.

The theory of reference that a generative transformational theory has to cope with makes its lack felt in the matter of pronominalization. In the Chomsky tradition (which by no means represents the total family of theories that are both generative and transformational) there have been two approaches to pronominalization: deletion and insertion.

Pronominalization by deletion holds that whenever two noun phrases that are not distinct in reference stand in a particular relation to one another, one of the noun phrases is deleted. The extreme form of deletion would be one in which not only must the noun phrases not be distinct in reference; they must also be identical in form. George Lakoff (ms) has also followed the line that pronominalization arises transformationally by deletion.

Emmon Bach (1968) proposed a different theory of pronominalization, followed with modifications by McCawley (1970) and Langendoen (1970). He pointed out the complicated nature of underlying representations that required identity of noun phrases in deletion; for example, in _The tall_ *teenager who came in here for a couple of hours yesterday while it was raining must have forgotten his guitar*, identity implies that the word *his* derives from *the tall teenager who came in here for a couple of hours yesterday while it was raining's*. It would be less cumbersome, he points out, if we could say that the sentence represents on the one hand a proposition like *x must have forgotten y* coupled with *x is the tall teenager who came in here for a couple of hours yesterday while it was raining* (without going into the complexities of the internal structure of that identification), *y is a particular guitar*, and *y belongs to x*, together with a principle that inserts the noun phrase identifying *x* when *x* is first mentioned and supplies the corresponding pronoun elsewhere.[3]

Not only does pronominalization by insertion give a clear account of pronominalization phenomena,[4] it also fits neatly with the idea proposed here that different kinds of information in discourse are characteristically encoded in different ways and at different points in the discourse

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[3] This is an oversimplification of English pronominalization. Limitations on this basic pattern are discussed extensively in the literature.

[4] Pronominalization by insertion seems to be capable of accounting for Bach-Peters sentences without becoming trapped in infinite regress: in *the man who discovered it never realized the value of the process he stumbled on*, the referent of *it* is *the process he stumbled on*, involving *he* in its definition, while the referent of *he* is *the man who discovered it*, involving *it* in its definition.

(Chapter 3). This makes it possible to think of the information in a discourse as partitioned into identifications, actions, evaluations, and the like, linked together grammatically by thoroughly regular patterns.

I have cautiously bypassed some things that have been said about discourse because I do not see that they lead anywhere. The one I have most obviously skipped is Zellig Harris's discourse analysis (1952a, b, 1963). Harris has found that within a text it is possible to form equivalence classes of substrings of sentences. A substring a occurs along with a substring b in one sentence and with c in another, say; b also occurs with d in some other sentence and c with e in still another, giving sentences of the form ab, ac, db, ec somewhere in the text. b and c then constitute one equivalence class, and a, d, and e constitute another. It is possible to analyze an entire text into equivalence classes, especially if the sentences are normalized in form.

What I think we have is an effect for which we cannot yet account: call it the Harris effect. It may be similar to the Edison effect in electronics. Thomas Edison mentioned in 1875 that if a metal plate were placed on the outside of one of his newly invented electric lights, a current could be made to flow between it and the filament when the filament was lit. He made a note of the 'etheric effect' (and in 1883, patented it under the name of the Edison effect), then went on to other things. Thirty years later, in 1905, Lee DeForest capitalized on the Edison effect and gave us the vacuum tube. I suspect that we may be in the same position as Edison was regarding the Harris effect. It is worth noting, but for the time being we do not know what to do with it.

It is also of interest that the normalizing of sentences to make it possible to get an analysis of a text into fewer equivalence classes seems to have been directly related to the development of the idea of transformations (Harris 1957). Harris's term 'discourse analysis', though defined very tightly, is too useful to allow it to remain attached exclusively to equivalence chain analysis. I prefer to speak of different kinds of discourse analysis, one of which is Harris's.

Another effect to be noted and shelved for the time being is the Salton effect. In his work on information retrieval noted earlier, Gerard Salton attempted to evaluate the quality of retrieval he was able to get. He found that if he analyzed texts syntactically before processing them against retrieval requests, the quality of retrieval was not significantly greater than what he got by taking into account only the frequency of occurrence of particular lexical items in the text as a whole, independently of their syntactic position. To the extent of establishing what a text is talking about, then, the Salton effect points to semantics without syntax. This kind of information retrieval does not tell what the text says about the things it is talking about, however; to say that a text has to do with disarmament does not tell whether the author is for it or against it.

Another line of thinking I have not followed up because I think it is a theoretical blind alley is Katz and Fodor's treatment of a text as a supersentence formed by conjoining all the sentences of the text. This manipulation did allow them to apply their projection rules and develop their notions of semantic structure, and from that point it is justified. But it appears more than anything else to be an artifact of the limitations of the theory under which they were working, a ghost if you like of the assumption that the task of linguistics is to explicate the sentences of a language.

5. EMPIRICAL STUDIES

A number of studies of discourse phenomena have been made already for a variety of languages. These have served as a testing ground for theories about discourse, and have consistently resulted in an enrichment of our understanding of discourse phenomena. There is no language for which the discourse structure has been described thoroughly; yet the composite picture from a number of languages certainly points toward an increasingly consistent conceptual framework for discourse studies. If we applied what we know now to a single language, we could cover its discourse phenomena fairly thoroughly, though there would be points where we probably could not yet relate one part of the picture to the other parts coherently.

Studies by Pike and his students have touched on English (Becker 1965) and Nomatsiguenga of Peru (Wise 1968), and influenced studies in Kaiwa, a Guaraní language of Brazil (Bridgeman 1966), Capanahua of Peru (Loos 1963), Shipibo of Peru (Loriot and Hollenbach 1970), among others. Longacre's work on discourse in the Philippines involved Ata Manobo, Dibabawon Manobo, Ilianen Manobo, Sarangani Bilaan, Tagabili, Atta Negrito, Botolan Sambal, Bontoc, Mansaka, Itneg, and Maranao. He also worked with Reid, Bishop, and Button on Totonaco of Mexico (1968), and on a number of languages in New Guinea, the report on which is forthcoming.

Gleason's group has studied Sango of the Central African Republic (Taber 1966), Cashinawa of Peru (Cromack 1968), and Fulani of Nigeria (Stennes 1969). Gleason himself has worked on Kâte of New Guinea.

In the series of workshops that formed the background for the writing of this book I was able, with the assistance of a grant from the National Science Foundation, to guide discourse studies in Bacairí, Borôro, Xavánte, Nambiquara, Kayapó, and Paressí of Brazil, Halia, Omie, Wantoat, Angaataha, Oksapmin, Sanio-Hiowe, Anggor, and Chuave of New Guinea, and Sarangani Manobo, Ilianen Manobo, Kalinga, Keley-i Kallahan, Ivatan, and Mamanwa of the Philippines. Prior to that series of workshops I had had a hand in discourse studies in Mundurukú of Brazil, Ayoré of Bolivia, Jibu of Nigeria, and Otomi of Mexico, plus doing some work of my own on Huichol of Mexico.

The point of all these field studies, of course, is not simply to collect data for data's sake. Instead, the attempt to work out each kind of discourse pattern as it comes up puts pressure on the theory of language that has guided the analysis, bending it one way or another. For my own part, the studies have been carried out in an atmosphere of interest and excitement, with the feeling that although in general we think we know how and why language is put together the way it is, there are areas that can be developed best under the stimulus of unforeseen phenomena.

Another result of the field studies is the beginnings of a typology of discourse. Longacre (1968) has extracted the parameters of sequence and accomplishment, for example, as the basis for his two-by-two division of discourse types.[5]

Thurman (ms) has surveyed broad classes of cohesive phenomena and categorized them under the headings of linking and chaining. I have looked at patterns of presentation of information in texts and have come up with the typological notion of the outline as over against the overlay pattern (Grimes ms). These regularities across languages and language families help us to narrow down the field of what to expect, and provide some control for other kinds of cross language studies.

6. THE APPROACH OF THIS BOOK

Since I have deliberately taken discourse as undefined, characterized only in terms of Pike's notion of a verbal behavioreme,[6] there is very little in human speech behavior that does not somehow fall within the scope of this book. To me this is an advantage at this stage of our understanding: look at anything that might conceivably fit, and if there is a place for it, then make sure the conceptual system stays in a form that will continue to provide a place.

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[5] Aristotle (Rhetoric 1:3) distinguishes deliberative, forensic, and epideictic or ceremonial rhetoric as respectively future (giving advise), past (accusation and defense), and present (praise and blame).

[6] Even though Pike's behavioreme is the starting point, the reader should be cautioned that my treatment of it is anything but that of the tagmemic school. For tagmemic studies of discourse and my reasons for wanting a more revealing theory of discourse, see Chapter 4.

I suspect that this approach is a pendulum's swing in the other direction from starting out with an arbitrary limitation like Chomsky's and seeing how far it will go, so that the next person to try his hand at a theory of discourse may well go back to a more restricted starting point.

The generalizations I try to make in the book all are related in form to the family of theories currently known as generative semantics. That is, I assume that we can say the most about language by separating out two different things: the decisions a speaker can make regarding what and what not to say, and the mechanisms and patterns that are available to him for implementing the results of those decisions in a way that communicates with another person. The decisions that the speaker makes, including the relations among them, are referred to as the underlying formational structure (since it is verifiable only indirectly from the forms he utters and the behavior that is associated with the uttering) or the semantic structure. The relation between the underlying structure and the speech forms that are uttered is called the transformation, or better yet the Transformation with a capital T, which is usually talked about by decomposing it into a number of less complex transformations with small t's.

An increasingly strong impression that has built up throughout the period of study that resulted in this book is that one of the things that current linguistic theory lacks is a viable theory of reference. As already mentioned, an implicit but formally unrecognized theory of reference has been in use for years, expressed principally in discussions of referential indices and coreferentiality. I see no way to avoid bringing this into linguistic theory;

but in doing so, I suspect that something more than the minimum needed to recognize coreferentiality will have to be defined.

Each of the linguistic traditions being talked about today is good for certain things and spotty for others. Even though when wearing the theoretician's hat I try to be consistent with one particular way of looking at things, I find that useful insights have been developed by people with other points of view. It is all to the good when I can put them into my perspective and find that they fit; when they don't, the problem is then to revise my perspective to make room for the insight, not to throw out the insight. A good example of this is tagmemics. I find, possibly because most of my early training in linguistics was in tagmemics, that it is an extremely useful tool for getting the facts of language sorted out and organized. I also recognize that when it came on the scene around 1954 it was like a breath of fresh air in that it made it possible to incorporate a certain amount of semantic information into grammar via the notion of function. Since moving off in a different direction in the early 1960's, however, I find that tagmemics leaves something to be desired as a view of what language is like, especially at the point where the idea of function seems in practice to turn into an arbitrary and almost mystical process for assigning tagmeme labels. Nevertheless, I feel quite free here to use tagmemic ideas. I recognize first of all that they do enable people to handle linguistic data without getting lost regardless of how the labels are assigned. I also realize that whatever the defects of their results may be as seen through the prescription I am currently wearing, I am likely to agree with at least ninety-five per cent of the analysis that is made when all is said and done, and there is no point in throwing out all that just because I find that there are more consistent ways of understanding the ragged five per cent.

In work that is as exploratory as this it is not surprising that a large amount of methodology for organizing data is mixed with theorizing. It is not really worth the trouble to state relationships among data elements or classes of data elements unless someone else can find the same data elements and verify the relationships. At this stage I am not even sure that it is possible to squeeze a pure theory of language out of the practice of discourse study. Where I have seen abstractions that can be made I have tried to call attention to them, but many of the components of a real theory of discourse are probably hidden within recipes for lining up information of a particular kind. I simply warn the reader about this, but do not apologize for it.

Along with the intermixing of theory and practice goes an inevitably large number of loose ends. We are not yet ready for a compendium or a formal summing up of what we know, because in some senses what we know is like a few galaxies and what we do not know but hope to is like the interstellar space that surrounds the galaxies: not very crowded. Yet I do not feel that having large numbers of unresolved questions about discourse is a bad thing as long as we see progress in pulling together a core of theory that allows us to work out toward the less explored areas.

CHAPTER THREE
EVENTS AND PARTICIPANTS IN DISCOURSE

To analyze discourse from a linguistic point of view requires that we find a workable starting point. The work of Gleason and his group has provided such an entering wedge. The basic idea behind their work is that different parts of a discourse communicate different kinds of information. The various kinds of things that are communicated in each part seem to be identifiable in any language, at least well enough that a meaningful preliminary breakdown of texts can be made.[1]

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[1] Part of this chapter and the next three was presented in a paper read before the Linguistic Circle of Papua and New Guinea on February 24, 1971, and subsequently published in Kivung (1971).

Empirically this distinction among various kinds of information has proved useful, not only in the studies on Sango, Cashinawa, Fulani, and Kâte that have already been mentioned in connection with Gleason, but also in Xavánte (McLeod ms), Mundurukú (Sheffler ms), Halia (Jan Allen ms), and others.

The distinction among different kinds of information is most obvious in narrative discourse as opposed to the procedures, explanations, and exhortations of Longacre's typology (1968). Procedures, which like narratives are based on the notion of temporal sequence, are the next most productive.

Parenthetically, the texts that yield the most consistent analysis are edited texts. Certain people in any society have a reputation for consistently producing the kind of discourses that other people want to listen to. Part of the reason people like these discourses must lie in their well formedness; that is, they are constructed according to plans that make it maximally easy for hearers or readers to comprehend them. Furthermore, even people who produce highly valued discourses recognize that certain parts of what they say can be improved by being reshaped or edited. The principles that guide their editing behavior are likely (unless they are imposed artificially from without, as for example under pressure of another prestige language) to represent a replacement of expressions that are less consistent with the discourse as a whole by other expressions that fit the structure and the context better. Speakers of unwritten languages display editorial reactions just as regularly as editors who work with paper and pencil.[2] The analysis of discourse that has been edited is likely to be easier, and at the same time more truly representative of those patterns of expression that speakers of the language react to as appropriate. Practiced discourses like folk tales are less likely to be told poorly than, say, personal narratives brought out on the spur of the moment with no opportunity to shape the expression first.

Even edited narratives cover quite a range. To begin analysis it is best to concentrate on simple narratives. These are characterized by having well separated participants: little or no merging of individual participants into groups or combining of one group with another. A simple narrative may still, however, contain a large number of distinct participants. Two-participant narratives, though common, may actually not be the best kind to start with, because the mechanisms needed to keep reference straight in them are usually rudimentary. Three-participant narratives are more likely to be revealing.

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[2] I am indebted to Larry Jordan for calling to my attention the value of beginning with edited texts, based on his experience with Mixteco of Apoala in Mexico.

The other characteristic that identifies simple narratives is that in them telling matches time. That is, the sequence in which events are told matches the sequence in which the events actually happened. Many languages have this as a strict requirement for all narration; others have techniques whereby the temporal scene can be shifted at will without losing the hearer. Texts with flashbacks, or that begin in the middle of things, should be left to one side at the start.

To begin analysis with simple narratives does not, of course, imply that we are limited to the study of simple narratives. Like any exploration of the complex, discourse study should begin in shallow water and only later progress into the depths. What is learned in the study of simple narratives becomes the scaffolding that allows progress into other areas.

The notion that different parts of a discourse communicate different kinds of things agrees with conclusions about language that have been suggested for reasons totally unconnected with the fact that they facilitate the study of discourse. McCawley's suggestion that noun phrases constitute a separate kind of grammatical production from the verb-centered part of sentences (1970), and that the two are laced together loosely and late in the derivational process, is motivated as far as I can tell by a need to account adequately for pronominalization patterns within sentences. It fits, however, with the distinction I make here between event information and identificational and other kinds of information. It also illustrates the notion that different kinds of information tend to be communicated by grammatically distinctive forms in surface structure.

1. EVENTS

The first distinction made in the analysis of discourse is between events and non-events. In *Garner, the halfback, made six yards around end* we are told two kinds of things: a particular person did something (that is, an event took place), and furthermore, the particular person is named Garner and is a halfback (neither of which is an event). Sometimes entire paragraphs are devoted to non-events, as in the description of a scene or a person. At other times, especially in languages like Anggor (S. Litteral ms), long stretches of speech may be devoted to nothing but event information, the rules of the reference system being such that the hearer always knows by deduction who is doing what.

Gleason, who pioneered in exploiting the difference between events and non-events, pointed out that different languages approach the time sequences between neighboring events in different ways. In Kâte, for example (Gleason 1968), events that are contiguous in time are distinguished from those that are separated by a lapse period during which nothing of significance for that particular story happens. The lapse may be long or short; but if it is noticeable in terms of the stream of action of the narrative, it must be mentioned. Cromack (1968), on the other hand, finds that Cashinawa requires a distinction between completing one event before the next begins and continuing the earlier event on into the next. In terms of Kate, a Cashinawa completion might be either with or without lapse; but Cashinawa speakers are not required to report contiguity or lapse unless they want to call attention to it. Cashinawa continuation, on the other hand, would undoubtedly be equated with Kate contiguity.

We can envision numerous logical possibilities for temporal relations between two events that are reported as a sequence. If we take A as the earlier of the two events and B as the later, we can distinguish several cases: A finishes significantly long before B begins, A finishes by the time B begins, A finishes just as B begins, and A does not finish by the time B begins. In the last case we might have to specify further whether A ends during B, A ends when B ends, or A contains all of B and continues on after B is finished.

Robert Litteral (ms) has applied the mathematical notion of topology to the linguistic treatment of time. He notes first that when time is handled by language, it is measured only rarely. For example, in I went down town and bought a shirt the first event, going down town, may have taken half an hour, while the second may have taken four minutes, or vice versa, depending on transportation facilities and shopping habits. Most languages would not give even a relative indication of the duration of the events, although they have the capacity to add this information if there is some reason to, as in *It took me half an hour to go down town; then I bought a shirt in four minutes*. The normal thing is for the two events, regardless of their relation to time by the clock, by the stars, by the seasons, physiological time, or even psychologically perceived time, to be reported simply as Event A and Event B. For this reason it is useful to model the linguistic handling of time in a non-metric fashion, which suggests a topology.

Suppose the relationship of events in a narrative fits Figure 3.1. Here Event A is followed by B, which is followed in turn by both C and D. D continues after C finishes, and also keeps going through the end of E. F and G follow, simultaneous with each other. A sample narrative with these relationships might be *(A) They got up before dawn and (B) ate breakfast together. (C) Curly rode into town, but (D) Slim headed off to the canyon to look for lost cattle. (E) Another cowpuncher he met at the mouth of a draw told him he had seen a yearling farther up. (F) Slim went after it (G) while the puncher watered his horse*.

It is also characteristic of the linguistic handling of time that the boundaries between events are rarely clear cut. For example, unless we are saying it in Kate, we give no idea whether or not time elapsed between getting up (A) and eating breakfast (B) in the example above. The only thing that is certain is that there was a time (A) when they were getting up and not eating breakfast, and that later there was a time (B) when they were eating breakfast and not getting up. This lack of interest in the transition period is represented appropriately by a line that represents time,

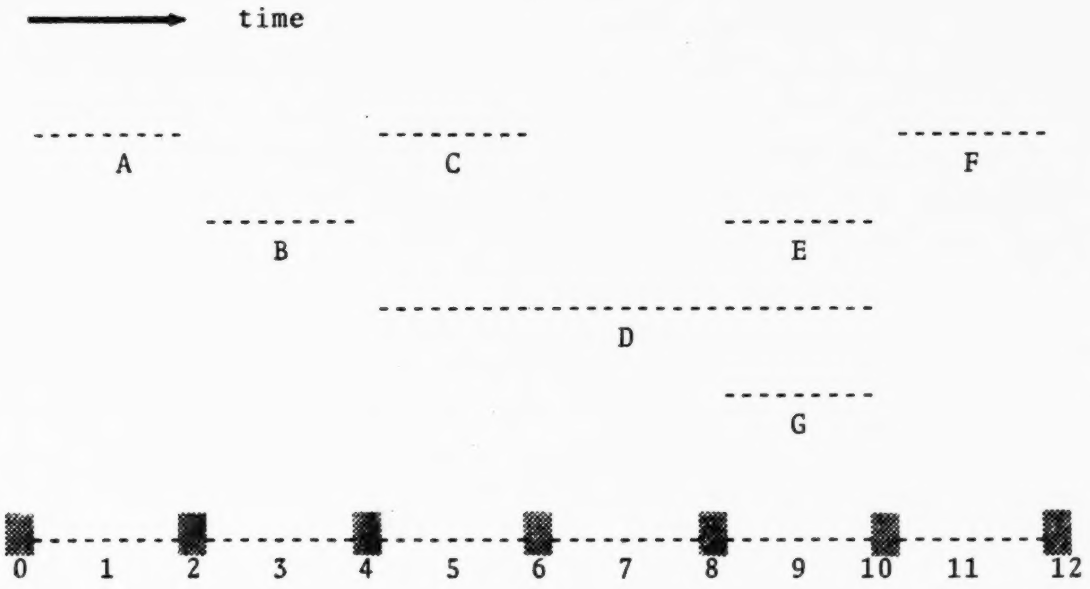
time
A
C
F
B
E
D
G
0
1
2
3
4
5
6
7
8
9
10
11
12

Figure 3.1. Events in time (above)
and time base (below).

and open sets of points along that line that represent events; open sets do not include their own boundaries.[3]

The time line appears to be a special case of what is known as a Hausdorff space, a kind of topological space in which for any pair of distinct points, there are neighborhoods of each that have no points in common.

Litteral takes the events as a subbase for the time line topology. This means that each event that is in the narrative is represented by an open set of points along the time line in such a way that the finite intersections of those open sets are a base for the topology that expresses the linguistic organization of time. The base itself consists of open sets such that each event set is a union of sets in the base. (The intersection of two sets is the elements that are common to both; the union of two sets is the elements that are found in either.) By arranging the members of the base and the boundaries between them along the time line, an open chain that covers the time line results. It consists of open sets representing linguistically significant stretches of time, alternating with the boundaries between the open sets. From this Litteral is able to construct an index illustrated in Figure 3.1 at the bottom. There the open set of points associated with an event is represented by a horizontal line and the boundary between two events by a slash. The alternating boundary and event

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[3] The elementary notions of topology are presented in Lipschutz (1965), Arnold (1962), or Mendelson (1963). The presentation of them here is informal, but is capable of being formalized. Technical terms used here include open set, boundary, Hausdorff space, neighborhood, subbase, and base.

segments are matched to the set of nonnegative integers (whole numbers) in such a way that even numbers match boundaries and odd numbers match events. There is also an even number α that denotes an undefined beginning boundary instead of 0 and a corresponding even number ω that denotes an undefined terminating boundary. The index of an event is an ordered pair ($\underline{a}$,$\underline{b}$) with $\underline{a}$ less than $\underline{b}$; $\underline{a}$ tells when on the time index line the event begins and $\underline{b}$ tells when it ends. For events that span more than one segment of the time base, ($\underline{a}$,$\underline{b}$) refers to the simple chain that begins with segment $\underline{a}$ and ends with segment $\underline{b}$, including all the intervening event spans and boundaries. Thus in Figure 3.1 the index of event A is (1,1), since A begins and ends with the same time segment. Similarly the other single span indexes are B(3,3), C(5,5), E(9,9), F(11,11), and G(11,11). The index of D, however, is (5,9); D spans the times of C and E and the boundary time between them as well.

This representation of time makes it possible to distinguish simultaneous actions like F and G from partially simultaneous actions like C and D or D and E with a precision that is something other than the precision of a stopwatch. Neither is it the precision of a frame counter on a motion picture projector, as was used in analyzing films of the assassination of John F. Kennedy. It is rather the kind of precision that is appropriate to the linguistic system itself. Furthermore, the distinction Litteral makes between events as open sets of points on the time line and the boundaries of those sets is valuable for making explicit certain kinds of aspectual distinctions like inchoative ('starting to...') and completive ('finishing...'). By providing a framework for time that is related directly to the referential system of language itself, Litteral has also made it simpler to talk about apparent referential incongruities such as My wife$_{n,\omega}$ was born$_{n-k,n-k}$ in San Diego$_{\alpha,\omega}$, in which obviously the person being talked about at time n was not the speaker's wife at the time she was born, $n-k$, but became his wife later.

Another kind of sequencing between events is what Ronald Huisman (ms) has characterized as tight vs. loose. In Angaataha, a language of the Eastern Highlands of New Guinea, Huisman reports two kinds of sequencing, temporal and logical, each of which may be tight or loose. Tight temporal sequencing corresponds rather well to the Kâte notion of contiguity in time, while loose temporal sequencing corresponds to Kâte lapse. In logical sequencing, however, tight sequence implies that one event has another as its direct consequence, while loose sequence implies that one event has a continuing effect that persists indefinitely, or at least to the point of influencing a second event even when that second event cannot be considered its direct consequence. The notion of a persisting effect is also present in the perfect tenses of ancient Greek.

The time sequence of a narrative is rarely expressed as though events simply followed one another like beads on a string. Instead, there is usually a subgrouping of events into smaller sequences; then each of these smaller sequences as a unit is put into sequence with other subsequences of the same kind. Time structuring can be carried on through several levels of partitioning, so that the grouping of subsequences of events can be diagrammed as a tree. Over the whole narrative, however, a single index in Litteral's sense can be constructed. The moving finger of time moves on from event to event; yet from another point of view the events themselves are clustered together.

In asserting this independence of temporal sequences from the hierarchical grouping of linguistic elements, Litteral has, I think rightly, eliminated my earlier notion (ms) of temporal sequence as one of several rhetorical relations (see Chapter 6). Instead he has moved temporal sequence into the area of reference. The clumping together of a series of events which are also in temporal sequence with one another turns out to be based on other organizing factors which probably are part of the rhetorical structure. For example, all the events that take place at a particular setting tend to be treated as a unit, as Glock and I found to be the case in Saramaccan (1970). When rhetorical organization and temporal sequence match, the order of elements can be considered normal or unmarked.

Another grouping principle that partitions events in a single temporal sequence could be called the principle of common orientation. A sequence of events is distinguished from a later part of the same time sequence in that all the actions in each part involve uniform relations among their participants. Alton Becker speaks of this as one of the bases of paragraphing in English (1966). Sheffler finds something similar but more explicitly communicated in Munduruku (ms). There the patient or goal of an action is singled out at the beginning of each paragraph. It defines the characteristic orientation of the participants for that paragraph, in that the rest of the actions in the paragraph are taken implicitly as directed toward that patient or goal. Uniformity of participant orientation will be discussed in detail in Chapter 9, and is related to thematization, discussed in Chapter 11.

Besides common setting and common orientation, some event sequences appear to be grouped together by the way they relate to plot structures. I had questioned earlier (Grimes and Glock 1970) whether plot structure was actually part of linguistics at all. I suggested it might rather be a perceptual template whereby a discourse could be rendered interesting by casting the more prominent referents in it in standard roles like hero and villain. June Austing (ms) finds in Omie, however, that the particle iae, which marks the beginning of temporal subsequences that are grouped together for other reasons, also begins temporal subsequences that do not appear to be grouped together in any of those ways, but do correspond to boundaries between Propp's basic plot elements (1958). This would suggest that plot structure is a factor in the linguistic behavior of Omie speakers and must therefore be considered as interacting with the time sequencing system of the language. The high predictability of the Labov-Waletzky suspension point, at which English speakers (but not Saramaccan speakers, I notice) inject evaluative comments or questions into a narrative between the complication and the resolution (1967, also discussed in Section 5 of this chapter), also argues in favor of plot as a semantic complex rather than as a principle of referential selection alone.

Not all events, of course, are in sequence. Language is capable of communicating forked action[4] as in

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[4] The term forked is taken from the terminology used to describe simultaneous computational processes in the design of multiprocessing systems. It is matched by joined, which refers to the point in the total sequence where all the simultaneous processes are known to have been completed so that another computational step that depends upon their joint results can then proceed.

you take the high road and I'll take the low road, which is not a description of a sequence of events. Forked actions may be related only by their simultaneity, or they may be different sides of a single complex action as in *the dog chased the fleeing cat* or *they got the car started by him pulling and her pushing*.

In other cases a language may mark certain stretches within which sequence is irrelevant. Janet Briggs cites part of an Ayoré text (ms) in which many things happen during a raid on a jungle encampment. Although all the events, which involve several individuals fighting and others getting killed or being captured, took place in some real sequence, they are explicitly marked in Ayoré by the particle *jéque* as part of a single hurly-burly in which attention to sequence, normally a prominent part of discourse structure, is suspended.

Ayoré is also typical of many languages in that the sequence of telling normally has to parallel the sequence of happening. Even when the sequence is suspended, the suspension covers an interval of time whose relative position in relation to other events is kept in the right order. Other languages, however, make use of a set of signals that allows events to be told out of order. The Odyssey, for example, consists of a series of flashbacks from a rather short main sequence of events; but it is constructed in such a way that there is no doubt about where each episode fits into the whole. True flashbacks are part of the main sequence of events but are told out of order. They are distinct from narrative subsequences that are told in an explanatory fashion without being in the main stream of events (Section 4).

2. PARTICIPANTS

The information that identifies the participants in an event not only links participants to events, but also works within a cohesive system to link one mention of a participant with other mentions of the same participant. It obeys rules of its own in addition to combining with event information.

There may be a distinction in language between participants and props. Certainly what Little Red Riding Hood's mother put in her basket has a different relation to the tale than Little Red Riding Hood herself does. On the other hand, it does not seem to be a simple matter to distinguish participants from props. One could suggest that the animate objects that are involved in actions are the participants and the inanimate ones the props; but this does not square with such things as Propp's observation that the helper in a plot, who assists the hero to attain his goal, is inanimate as often as animate (1958). Many other texts also have the form of a folk tale without necessarily intending to be one. In a considerable amount of scientific writing the hero, the author, slays a dragon, either ignorance in general or the bumbling of former investigators, by means of a helper, a second order differential equation, and thus rescues the victim, his branch of science. In folk tales of this kind many or all of the participants may be abstractions.

The role ranking developed in Chapter 5 gives a scale of relative involvement in an action, from deliberate involvement expressed by the Agent, to being acted upon in the Patient and Instrumental, and from there on down to zero involvement. This ranking might make it possible to divide the things mentioned in a text into those that never appear in the more active semantic roles, the props, and those that do, the participants. This kind of classification might be implicit in Wise and Lowe's partitioning of objects into participants and props in their analysis of a Nomatsiguenga text (1972).

The distinction between participants and props does seem to be related to plot, possibly in the sense just mentioned. That is, even if activity is not relative to the role system as such, yet it may be relative to the plot within which it takes place. Little Red Riding Hood's lunch basket contents may not matter in the plot because they never do anything; Digory's rings in C. S. Lewis's The Magician's Nephew do matter because they transport him to another world. On the other hand, Rosencrantz and Guildenstern in Hamlet have always impressed me more as props than as participants; what they do implements what somebody else has decided.

A fourth possibility for distinguishing between participants and props is suggested by the study of orientation systems (Chapter 9). If we assume that changes in the orientation of participants toward actions are systematic, then any elements that would break the regularity of orientation patterns if considered as participants are probably props. This notion combines two things: the relative involvement in a particular action that is implied by a ranking of underlying case categories, and relative involvement in the more comprehensive categories of plot. Even so, it remains to be seen whether the distinction between participants and props can ultimately be generalized to plotless and nonsequential texts.

Reference to who and what is involved in an event is partially independent of the means used to identify each referent. For example, here are six sentences that could conceivably refer to exactly the same situation, and therefore to the same set of referents, but that use different means of identifying them.

(a) The butler it was that killed him.
(b) Someone in a tuxedo killed him.
(c) That one killed him.
(d) He killed him.
(e) He killed the prime minister.
(f) Killed him.

Throughout this book reference and identification are kept distinct. Reference has to do with who or what is being talked about. It goes back to the speaker's assumption that the hearer knows who or what is involved. Identification, on the other hand, has to do with the linguistic means that the speaker uses to communicate to the hearer who or what is involved. In (f) the doer of the deed is not identified, but he is still the doer of the deed; there is reference with no identification. The way in which identification is accomplished depends upon the circumstances, linguistic and nonlinguistic, under which reference is made.

Participants are referred to as individuals or in groups. Reference to individuals presents relatively few problems. Group reference, on the other hand, takes a number of forms. It may be individual centered, as in the President and his staff or me and my gal. It may be collective, referring to members of the group en masse: the Presidential staff, today's consumer. The group reference may imply that a further partitioning of the group is possible: representatives of the major labor unions invites a matching up of representatives with labor unions. It may be undefinable, as in they say it's going to rain, for which it is considered impertinent to ask who they are. Some languages have a conventional they as well: they were camping near the rapids in the absence of any more explicit identification means 'those members of our tribe who were alive at the time' by default.

Sometimes reference shifts during the course of a text. There are three kinds of shift: introduction and deletion, recombination, and scope change. Introduction and deletion involve expanding and contracting reference by adding or subtracting individuals from a group. For example, in We met George at the airport. We all took the same plane. a group ($\underline{we}_1$) is introduced, then expanded, then the expanded group ($\underline{we}_2$) remains as the referent. The Jibu text cited by Bradley (1971) involves extensive expansion and contraction of groups.

Recombination is slightly different from expansion and contraction. In expansion and contraction individuals are introduced only to the extent necessary to enable them to be incorporated into a group; once in it, they have no further identity, like George in the preceding example. When a group contracts, as in the Jibu example, individuals who leave it are not referred to again, but are lost to view. In the merging and splitting of groups, however, the constituent subgroups of which the original group was composed remain as referential entities. For example, in We had dinner. Then we went to work on the nominations while the children went to a basketball game the first we includes the children while the second we does not; the children remain as a newly defined group split off from the original group. Thus although the original group is split, all its members remain in view, but the groups they are assigned to are not the same as in the earlier identification.

The third kind of referential shift, scope change, is like the effect of a zoom lens on a camera. It changes the area that is under attention. It may combine individuals who were formerly seen as individuals and treat them as a group, not because they start to act as a group as in the case of expansion and merger, but because they and everything else being talked about are seen in a broader perspective. Bradley's Jibu text, already mentioned, includes an example of zooming in from a more distant perspective to a closeup, with a corresponding shift in reference. She has a group of individuals, namely the bridegroom, priest, and bride, interacting as a single group with the guests at a wedding. At one point in the text, however, the guests are left out of the picture and the narrator tells what the members of the bridegroom's group say to each other. They are treated as distinct individuals for the duration of that scene only. Later the scope zooms back out to the entire wedding proceedings, and the reference picks up the bridegroom's group again as a single entity as it was before.

Where there is a shift in the spatial viewpoint from which events are reported there may also be a shift in reference. When a narrator has been speaking as though he were omniscient and knows everything that goes on both inside and outside the heads of the participants, he may shift, for example, to presenting events as a certain one of the participants sees them, or vice versa. When he shifts, what at first he had treated as reference to individuals may change to reference to groups, or one pattern of grouping may be replaced by another through merging and splitting.

Identification, or the linguistic indication of reference, will be discussed in detail in Chapter 8. The next paragraphs here are a preliminary sketch of identification. The basic problems in identification are first, establishing reference sufficiently well that the hearer is clear about who or what is being talked about, and second, confirming or maintaining it sufficiently well to keep the hearer from becoming confused.

Unique reference is established, and to a certain extent maintained, by naming in some cases (Jakobson 1957). In others, as is often the case where naming in itself would not be enough to fix reference adequately for the hearer, some kind of description is used to narrow down the range of possible referents to where the speaker thinks the hearer can proceed on his own. Bach (1968.105), McCawley (1970.172), Langendoen (1970.47) and Postal (1971) have discussed the relation between grammatical forms of description and the referential problem of keeping the entity that is being described distinct from other entities. Postal (1971.13) has discussed the fact that even single nouns used to characterize a referent descriptively may have a time dependent element. In *she married the poor bachelor and made a happy husband out of him* the same individual is referred to twice, but with two different descriptions appropriate to two different time segments $(\alpha,1)$ and $(3,\omega)$ corresponding to before marriage and from the time of marriage onward.

From the point of view of discourse studies the striking thing associated with the distinction between events and the identificational information that goes with the participants in those events is the different grammatical forms that are used to communicate the different kinds of information. Whereas events tend to be communicated by independent verbs in most languages, transformed from underlying predicates whose role sets include nearly anything but the essive (Frantz 1970), identifications tend to involve the embedding of sentences. They also include nouns, which may be the extreme case of embedded equative sentences. Essives are common in identifications, and surface constructions of the equative and stative varieties are characteristic of them.[5]

Identification is also maintained through the use of anaphoric elements. The most general of these, as pointed out by Lakoff (ms) and Langendoen (1970), are not pronouns, but nouns used as umbrella terms to cover a wide area of more specific nouns. They include nouns that are easily recognized as generic, like *thing*, *one*, *person*, and *idea*. They also include nouns that are generic relative to the particular referents, like *dish* in *All they had was chili and apple pie. He ate them, but the first dish gave him nightmares*.

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[5] This is true even in languages like those of the Philippines where it is traditional in translation into English to render verbs nominally: *as for Bill, the hitting of him was by John*, or something of the kind. The nonverbal glossing of sentences in languages of this kind helps convince the reader that he is not dealing with English, but it rather obscures the fact that these languages also use true equative constructions to indicate the topicalization of units larger than the clause (in a manner parallel to English *what Bill did was to hit John*). This is discussed further in Chapter 11.

Pronouns are the common means of maintaining identification. How efficient they are depends partly on the richness of the categories of appropriateness of reference that are available within the pronominal system. As long as two referents in English, for example, can be referred to by he and she, pronouns alone are enough to maintain their referential distinctiveness indefinitely; but if two referents both fall within the scope of he, other measures have to be taken to keep them from becoming confused. What things in a discourse a pronoun can refer to may be indicated explicitly when the pronoun agrees with nouns that are used to initiate identification of the referent. Spanish la, for example, is used to identify many referents that are introduced with nouns that end in a like cola 'tail' and mesa 'table', as well as with nouns that lack the a ending but are conventionally treated in the same way like mano 'hand'. The applicability of a pronoun may simply be known by convention, as when English she is used to identify something that was introduced with ship. In other cases neither explicit form nor convention suffices, as in the case of Spanish sobrecargo 'airplane cabin attendant', where la is used if the specific attendant in question is female and lo if male.

Inflectional reference is closely enough related to pronouns that the two are sometimes discussed together. From the point of view of identification, however, it is important to notice that the categories of appropriateness of reference for inflectional systems are, as far as I know, never more finely divided than those of the pronouns with which they may stand in cross reference. The inflectional categories may be identical with the pronominal categories, or the pronominal system may be richer in distinctions than the inflectional system, but the inflectional system probably never has more categories than the corresponding pronouns.

Even though this section is about participants, so far in discussing means of identification I have phrased things almost exclusively in terms of the identification of physical objects. The notion of identification is, of course, much broader. It is just as appropriate to speak of identification of time spans ('then') or motions ('did so') or directions ('there') or anything else. All these kinds of things are identified both descriptively and anaphorically; and even inflectional systems may index any of them.

Before leaving identification it is useful to point out that the notion of zero or implicit identification helps to bridge the gap between identification and reference. There are many cases where the hearer is expected to know who the participants are by deducing it from the context; he is not told by any overt linguistic signal. The rules for this kind of deduction are most important for the way they shed light on the entire process of identification. Like any zero element in linguistics, zero identification must be approached with caution; there must be a way to recover the reference from the context by rule, and there must be no possibility that the zero identification could contrast with its own absence (Haas 1960).

CHAPTER FOUR

NON-EVENTS IN DISCOURSE

1. SETTING

Where, when, and under what circumstances actions take place constitute a separate kind of information called setting. Setting is important in the study of discourse not only because it characteristically involves distinctive grammatical constructions like locatives, but also because it is a common basis for segmentation of sequential texts into their constituent parts.

There is a difference, not always easy to perceive, between the setting of part of a text and the underlying relation of an action to its surroundings that I speak of later (5.1) as the Range role. Range is part of the definition of certain actions, not part of the definition of every action. For example, with the English word climb, the surface on which the climbing is done is an essential semantic element of the action; if it is omitted, it is because the Range is readily deducible from the context, never because it is irrelevant to the action. Other actions like think and say, on the other hand, do not have Range as part of their semantics. For example, if a person uses climb without making clear the surface on which the climbing was done, and a hearer asks him about it, he will get either a definite answer like on the roof or under the porch, or he will elicit the equally determinate I don't know, implying that it was legitimate for the hearer to have asked. But if asked where a particular event of thinking or saying took place, the speaker is more likely to come back with a bewildered huh? and the kind of look is his eyes that shows he has no idea what the hearer is talking about, because Range is not part of the normal semantics of those actions. On the other hand, a true setting is capable of extending over a sequence of actions and is independent of the semantics of any of them. It can also apply to predicates that do not have Range as part of their meaning: *While I was in Phoenix I had a great idea*.

It is tricky to distinguish setting from the Range role. Either may, for example, take the form of a locative such as a prepositional phrase. One test that seems to work in a number of languages is the test of separability. Setting information can be paraphrased naturally in the form of a *when*, *where*, or *while* clause. It may even take the form of a separate sentence or block of sentences: *Finally we arrived in London*. *It was ten in the morning*. Range information, on the other hand, cannot be separated. *When he was at the street corner, he climbed* does not give the Range for *climb*; it is necessary to make Range part of the same clause, as in *he climbed the flagpole* or *he climbed the path that led from there*.

Settings in space are frequently distinguished from settings in time. All languages probably have the capability for defining a spatial setting by description, as in Gilbert and Sullivan's *On a tree by a river a little tom-tit* ... Maxakalí of Brazil (Popovich 1967) characteristically goes heavy on describing spatial reference. Up to half of each paragraph may be taken up with telling exactly where the action of that paragraph took place. Other languages give descriptions of spatial setting more sparingly. Especially in societies in which the physical environment is well known and most reported actions take place within it, a few cryptic and conventional reference points seem to be all the definition of setting that is normally needed. In Cora of Mexico, for example, each dwelling area has the physical features surrounding it catalogued through conventional combinations of verbal affixes, so that more explicit description of the setting is necessary only in talking about actions that take place outside that part of the tribal area (Ambrose McMahon, personal communication). In Anggor (S. Litteral ms) the factors of location of high ground, direction of river flow, and the sun's path combine in the selection of locatives in a way that gives almost a precut definition of the setting, changed only if those properties are radically different in the settings of some actions.

Spatial settings may be redefined during the course of a text either by describing where each new setting is located, as seems normal for English, or by a relative redefinition that takes the most recent setting as its point of departure. Maxakalí does this frequently. When a setting is established in one paragraph, certain other points are described that are related to the setting yet outside of it. The paragraph may end with one of the participants going to one of those peripheral points. A new paragraph that begins with an indication that the setting is to be changed may then pick up the peripheral point at which the action of the last paragraph ended and make that into the setting for the next paragraph. Oksapmin (H. Lawrence ms) does something similar (except that the shifting of setting does not seem to be related so closely to the division of the text into paragraphs as in Maxakali). A setting is established; then verbs of motion like 'go' and 'come back' are used for excursions out from that setting and back. If a 'go' is not matched by a corresponding 'come back', however, then a following 'arrive' or similar verb establishes a new setting. On the other hand, a 'come back' or 'return' that is not preceded by a corresponding 'go' switches the setting back to whatever setting was defined at the beginning of the text.

Huichol of Mexico defines spatial setting either by motion from one place to another, like Oksapmin but on a much less extensive scale, or by a more static characterization of one area in its relation to the area where earlier actions occurred. For example, 'up on top' is used to characterize an area on top of a mountain range as it is seen from the perspective of previous actions that took place in a valley below. From then on all reference to the setting is from the new perspective of the top of the mountains until that in turn is changed.

The scope of a spatial setting may be broad or narrow. Oksapmin, for example, defines as the first setting of a narrative the place where the person stood from whose spatial viewpoint the story is told. The setting also includes his immediate surroundings. The extent of those surroundings, however, may take in as little as part of a room, or it may include part of a country. There is no explicit indication of where the boundaries of an Oksapmin setting lie; it must be deduced by the hearer from the speaker's pattern of use of prefixes like ma- 'here', or more exactly 'within the setting area', as opposed to a- 'there, outside the setting area'.

Settings in time are equally important. Temporal setting, like spatial setting, must be distinguished from the temporal properties inherent in a particular action. Whether an action followed its predecessor immediately or after a lapse, whether it is viewed as having an extension in time or taking place as a single unit, whether its effects are said to persist, all are independent of the general time framework of the narrative, just as the place where an action or series of actions happens is independent of those elements of location (Range) that are an integral part of the definition of the action.

Descriptive definition of time is usually with reference to some kind of calendric system. The term is used broadly to include not only explicit calendric references like Longfellow's *'Twas the eighteenth of April in seventy-five* ... but also references to uncodified but culturally recognized temporal events like *at the first new moon after the solstice* or *when the corn developed its second joint* or even the Old Testament's *at the time when kings go forth to battle*.

Another kind of time definition makes use of reference to memorable events. This can shade off into a calendric system of its own in the case of dynasties or definitions of years by outstanding events as in the Kiowa calendar (Mariott 1945). St. Luke, for example, places the birth of Christ 'in the days of Herod' (1:5) as a general time, then more specifically 'in those days ... the first enrollment, when Quirinius was governor of Syria' (2:1-2). One episode of a Bororo story (Crowell ms) begins with 'John fished', not as an event in the story, which is about jaguars killing cattle, but as a means of placing the episode both in time and in space with reference to John's fishing trip. The notion of a mythological 'dream time' or 'in the time of the ancestors', common in Australia and New Guinea, is a still different kind of establishment of setting, not too different from the English *once upon a time*.

As with spatial settings, temporal settings within a narrative can be established relative to earlier temporal settings. This is usually done by mentioning the amount of time that intervened between the earlier group of actions and the later group: 'after three years', 'the next day', 'when the next chief came to power'. The time may also be established with reference to the time of telling: 'last year ... within the last three weeks, however'. Aging of the participants serves as a mechanism for establishing settings in other cases: 'Now he was three years older', 'by the time she got married', 'later, after he had stepped down from his heavier responsibilities'.

McLeod (ms) suggests that the psychological atmosphere of a series of events may be treated linguistically in a fashion parallel to spatial and temporal setting. This may be so, or it may be that that kind of information is more parallel to the explanatory background information discussed in the next section. So far I have not seen enough examples of it in any language to be able to decide how it works.

2. BACKGROUND

Some of the information in narratives is not part of the narratives themselves, but stands outside them and clarifies them. Events, participants, and settings are normally the primary components of narrative, while explanations and comments about what happens have a secondary role that may even be reflected in the use of distinctive grammatical patterns, as it is in Mundurukú (Sheffler ms).

On the other hand, in nonsequential texts, explanatory information may itself form the backbone of the text, and narrative sequences may be used to illustrate it. Thus it appears that the narrative oriented model used to begin the analysis of discourses points toward a generalized model that can be used for more than just narratives. In the generalized model of kinds of information in discourse there is no need to single out one kind, events, as the one we expect to be the central thread of the discourse. Other kinds of information may be made the central thread instead.

Much of the secondary information that is used to clarify a narrative (called background for convenience, even though the term may be misleading for nonsequential texts in which the background type of information could be thought of as in the foreground) has an explicitly logical form of structure, frequently tied together with words like because and therefore. It is an attempt to explain. It has this explanatory form even when the logic in it is invalid or when it falls short of really explaining what it purports to explain. As far as natural language is concerned, it seems enough that the sound of logic be there, though the substance and structure of logic be nowhere in sight. The logic may be shaky and the premises flawed, but it is usually accepted anyway as long as it is case in the right linguistic mold.

Explanations, either as secondary parts of narratives or as the central theme of texts, often involve premises that the speaker feels are generally accepted and therefore leaves unsaid. Sometimes what is unstated brings consternation to the linguist from another culture who is not yet in a position to supply the missing pieces of the argument. Even Aristotle, however, recognized the legitimate use of enthymemes, or partially filled in arguments, rather than complete arguments (Rhet. 2:22), and pointed out that the speaker might have to contend with sham enthymemes (Rhet. 2:24).

The handling of the structure of explanations actually sheds light on the depth and sensitivity of the speaker's estimate of who the hearer is; because even in cultures where nearly all parts of an explanation or argument are assumed, if the hearer makes it sufficiently clear that he does not follow, most speakers will restate themselves in an attempt to make up for his lack of understanding. (This is less likely to hold in relatively homogeneous and isolated cultures, where many of life's activities depend upon the assumption that everyone shares the same fund of information. In these cultures only the more imaginative may entertain readily the thought that an outsider might not automatically share all the assumptions that the members of the society hold. The pervasiveness of this belief about the pervasiveness of belief could in fact serve as a definition of ethnocentrism.)

A speaker may leave out elements of an explanation, whether it is given as background to a narrative or whether it is the main thread of a text, in several ways. He may, for example, state premises in his argument that fill the role of premises in the structure but that are far removed from the real premises, either because they are superficial derivatives of them or because the real premises on which the argument is based are not palatable to the hearer.

One recalls, for example, the President's statement justifying his 1971 economic freeze on the grounds that it had been called forth by the activities of international monetary speculators. This, if carried deeper, would point back to the premise that the economy of a large nation can be controlled by a small number of individuals on another continent; but few of the people who saw the statement delivered on television would have accepted that premise. On the other hand, it would have been politically disastrous to admit as a reason for the action the fact that the country's economy had been allowed to work itself into a state that was noncompetitive on the international market, which one suspects is much closer to the real reason for the action. So a premise of sorts was dropped into the necessary slot in the argument.

Another type of gap in explanations is found in the connection made between premises and conclusions. In the European tradition there is a long history of trying to make connections of this kind clear. The tradition of topoi, or familiar skeleton arguments, goes back to Aristotle (Rhet. 2:23). In other traditions there are modes of connection which, though not necessarily acceptable in the European tradition, are taken as valid. An example is the so-called 'rabbinical logic' in which the presence of a word in the Biblical text is taken as proof for an argument in which that word is involved. St. Matthew, for example (2:15), cites Hosea 11:1, 'I called my son out of Egypt', as a prophecy referring to Christ's time in Egypt, even though in Hosea's own context it is related to Israel's turning away from God.

In general explanations tend to contain as little information and have as uncomplex a structure as the speaker thinks he can get away with. The belief system that is being invoked may be rich and intricate, and the number of steps when fully traced out may be great; but unless a speaker foresees some misunderstanding on the part of the hearer he can be counted on to hit only enough of the high spots to suggest the general nature of his argument. He appears to count on the hearer to have most of the elements and relations of the argument already present in his own head, so that touching a few points is sufficient to activate the whole logical structure.

Certain events are told as background, not as part of the event sequence. In Saramaccan, for example, a story that deals with a canoe trip that ended when the canoe captized in the rapids goes back at the very point of the disaster to a series of events that took place before the the trip started: The man of the family that made the trip had brought in cassava, his wife had grated it and cooked it into bread, and they had made bundles of it to take with them. As far as I can tell the reason this sequence of events is put into the story is not because those events should have been told before as part of the main sequence and were overlooked, but rather because the speaker wanted the hearer to understand the magnitude of the loss when the canoe overturned. So he gives details on the labor that went into producing the load (Grimes and Glock 1970). Aristotle (*Rhet*. 1:2) likens these exemplary events to steps of an induction in logic; they make a case by proceeding from instances, not principles.

Sequences of events that are told as background are in a sense embedded narratives, though the ones I have noticed so far are much less rich in structure than the main narratives on which they are supposed to shed light.

Their structure is, however, their own, independent of the structure of the main narrative. Furthermore, there is no requirement that the participants in the embedded narrative be connected with the participants in the main narrative. In the Saramaccan case they are the same. In parables, which are a special kind of narrative used to shed light on something else, there is usually no connection of participants with those of the main story except by analogy. In between lies, for example, St. Matthew's account of the death of John the Baptist. It is brought in as an explanation of the apprehensions of King Herod about Jesus, who Herod thought must be John come back to life. Then the supporting narrative goes back to the death of John and brings in Herod's brother Philip and his former wife Herodias, whom Herod had married, together with Herodias's daughter (14:1-12). None of the events involved in this peripheral story touch the main narrative directly. They rather serve to explain an attitude reported in the main narrative. Only two of the participants, Herod and John, appear in both narratives.

Antecedent events occur in a time framework that is removed from that of the main narrative. In terms of Litteral's time index (ms) they are removed from the main time of the narrative by a constant factor k, so that an antecedent event sequence that relates to time segment n in the main narrative has indices of the form $n - k + i$, where $i = 1,3,5,\ldots$, for the events within it. This time *displacement* is signalled overtly in some languages. English, for example, uses the past perfect tense to point out a displacement: in the preceding paragraph I find I wrote *whom Herod had married* for just this reason.

Another kind of background involves an event sequence used to explain things, but displaced forward in time rather than backward. Such *foreshadowing* has a displaced index of the form $n + k + i$. Again, the internal structure and cast of participants of such a displaced event sequence are essentially independent of the structure and cast of the main sequence.

Foreshadowing has two uses in narrative. First, it explains the main events by stating a sequence of events that might result later from the main action. Second, it may fill in the semantic content of part of the main event sequence well before the events are actually asserted to have taken place. This is seen in narrative sequences like *He married Cindy so that he could drain her fortune off to a numbered account in a Swiss bank. When he attempted to do so, however, Dapper Dan got wind of it and advised Cindy to switch to municipal bonds over which her husband had no control.* Here *drain her fortune off* is not asserted as having happened; the actual assertion of an event is *attempted to do so*, with the semantic content of *do so* already specified. In the same way switch to municipal bonds is a foreshadowing in terms of the time base of the event *advise*. As we leave this touching drama we are not told whether Cindy ever got to her stock broker in time. It is of such interplay between foreshadowing and assertion that soap operas are woven; but the pattern also has its serious uses.

Foreshadowing shades off into collateral information, discussed in Section 4 of this chapter. There is a slight difference in emphasis between the two, but which is intended may not always be clear. Foreshadowing, like other background information, intends to explain something, whereas collateral information intends to lay out a range of possible actions so as to set off the main action by contrast with the other alternatives to it.

3. EVALUATIONS

Not only do speakers report the state of the world; they tell how they feel about it. The expression of internal feelings in relation to other kinds of information (which is not the same as a cognitive reporting of what one's internal feelings are) involves specific modes of linguistic expression, as we shall see.

The reactions that are expressed come from several sources. The most obvious is the speaker's own evaluation: Here comes that blackguard Jones not only identifies Jones and sets the action in the speaker's immediate environment, but also lets the hearer know what the speaker thinks of Jones. Aristotle (Rhet. 3:2) points out the difference between 'Orestes the matricide' and 'Orestes the avenger of his sire', depending on what the speaker thinks of Orestes.

Often evaluations are imputed to the hearer or to other people referred to in the discourse. Any participant in a discourse can be assumed to have his own opinions of things, and the speaker may feel that he knows what those opinions are sufficiently well to include them. There is, however, a restriction that is pointed out in manuals of short story writing (Meredith and Fitzgerald 1963). The speaker, or the person from whose spatial viewpoint a story is being told, must have established himself as being in a position to know what a particular character thinks before he can say what that character thinks, or else a viewpoint constraint is violated. Only under the assumption of an omniscient viewpoint can the speaker dart in and out of people's minds with impunity; otherwise the speaker must connect any evaluation that he gives with the possibility that he can give it legitimately. (As a linguist I do not yet see how to incorporate this kind of viewpoint constraint into linguistic theory directly. It is either an involved kind of referential constraint, or else stands clear outside linguistics.)

Another kind of evaluation is that of the culture within which the speaker is speaking, the conventions of the society he represents. The ancient Greek chorus brought society's expectations of what was proper into the play, and weighed the actions of the participants less against the personal factors that influenced their choices than against the factors that all agreed should have been decisive. In some ways the omniscient viewer of modern story telling represents this function.

Not everything in a discourse has to be evaluated. For this reason it is useful to recognize the scope of an evaluative statement. It may be global, embracing an entire discourse; if so, it is likely to be found either at the beginning as an introductory statement that tells why the rest of the discourse is being told, or at the end as a moral to the story or the tag line to a fable. Frequently the evaluation is local, as when one participant tells another that as far as he was concerned what they just did was the wrong thing to have done. Labov and Waletzky (1967) discuss the use of evaluative statements of this kind. They occur between the complication part of a narrative and the resolution. An evaluation, which may evaluate the immediately preceding event or the entire situation of the story or even the situation of the telling of the story, suspends the flow of events at a structurally significant break.

Bolinger (1968) discusses the influence of evaluations on choice of words. Not only is one man's meat another man's poison, but what is prudence for one is cowardice for another, what is beautiful design for one is garishness for another, and what one calls love another sees as sentimentality. It all depends on how you look at it, literally. Thus there are words that always represent Good Things, such as loyal, true, Mother, and the whole list that includes 'Remember the Maine, Plymouth Rock, and the Golden Rule' in the song 'Trouble' from Meredith Willson's The Music Man. On the other hand, there are words that always represent Bad Things: ghastly, traitor, decay. Other words float in between, depending partly on the temper of the times (the chorus function) and partly on the immediate context. Charles Osgood (Osgood, Suci, and Tannenbaum 1957) shows how the evaluative component of words can be represented, and how it shifts in terms of varying psychological states.

Labov and Waletzky point out that evaluative information is the most mobile part of a narrative in that it can occur nearly anywhere without changing the meaning of the narrative as a whole. They apply a permutation or mobility test that consists of interchanging pairs of clauses and finding which interchanges destroy the meaning of a narrative and which merely produce what subjects react to as another version of the 'same' narrative. Evaluative clauses characteristically can be moved anywhere within the text. Event clauses, however, cannot be taken out of their text order without making a different story, unless the reordering is heavily marked. Other types of clauses can move over a limited range. This capability of evaluative clauses to occur anywhere makes the consistency with which they appear at the Labov-Waletzky suspension point (between the complication and the resolution) all the more interesting.

Evaluations bring the hearer more closely into the narration; they communicate information about feelings to him that goes beyond the bare cognitive structure of what happened or what deduction is to be made. In conversations, and even in monologues, the hearer may be pressed to give his own evaluation: What do you think? How do you suppose they took that?

Evaluations may also be an aim of the discourse. By communicating how the speaker feels, there is often an implication that the hearer ought to adopt the same attitude. Stories with a moral are characteristically of this kind. Where the evaluation itself is the punch line, the discourse is hortatory in form (Longacre 1968), and may take the form 'Because these things happened, you should feel as I do', or 'Because this principle holds for the reasons I give, here is the attitude you must take'. A story with a moral is thus likely to be an exhortation within which there is embedded a narrative.

Evaluative information shades off into background information or even into setting in cases where it serves to build up the psychological tone of a series of events. Here the general form would be 'Because people felt this way, or because I think things were exceptionally good, this is what happened as a consequence'. Evaluations also mark the development and release of tension in a plot, giving cues as to how the action affects the participants' view of things and vice versa.

4. COLLATERAL

Some information in a narrative, instead of telling what did happen, tells what did not happen. It ranges over possible events, and in so doing sets off what actually does happen against what might have happened.

For example, in the Saramaccan text referred to in Section 2, the narrator breaks the sequence of events after the capsizing of the canoe: 'The canoe overturned. The father did not die. The mother did not die. The children did not die. Instead, they all escaped to land.' By telling what did not happen to the participants, he throws the significant event of their escape into relief. Aristotle lists 'describing a thing in terms of what it is not' as a device for impressiveness of style; he attributes its recognition to Antimachus (*Rhet*. 3:6).

The idea of collateral information was brought to my attention by William Labov in a lecture which as far as I know remains unpublished. He also pointed out that collateral information (his term for it was 'comparators') is not restricted to things that might have taken place but did not. Collateral information also fits into projected time. Questions, for example, raise alternatives that might or might not turn out to be so; future tense forms predict actions that might or might not take place; imperatives direct people to do things that might or might not be accomplished. All of these have the effect of setting up alternatives. Later in the text it is usually made clear which of the alternatives happens. At that point the fact that alternate possibilities were mentioned earlier makes what actually does happen stand out in sharper relief than if it were told without collateral.

Collateral information, simply stated, relates non-events to events. By providing a range of non-events that might take place, it heightens the significance of the real events.

Collateral information also has the effect of anticipating content when, with reference to projected time, a number of alternatives are spelled out in advance as possibilities. If one of these alternatives is the real one, much of what has to be said about it has already been said ahead of time. In this respect collateral information is not very different from foreshadowing.

I have already mentioned some of the grammatical forms that are characteristic of collateral information. These are closely related to mood (15.3). The rest of this section gives details concerning collateral forms.

Negation, first of all, is almost always collateral, whether its temporal reference is in accomplished time or in projected time. Events that do not take place have significance only in relation to what does happen. Events about which it is predicted that they will not happen still may or may not take place; if they do not, then we are concerned with what else might happen in their place; while if they do happen contrary to the prediction, the fact that a negative prediction was made about them contributes to the highlighting effect.

Adversatives are a form of negation. Some imply parallel but disjoint action: *They brought pickles but we brought mustard* conveys implicitly *they did not bring mustard and we did not bring pickles*. Other adversatives imply that the speaker assumes the hearer to have inferred an event that is plausible but that did not in fact happen: *We arrived late but were received immediately* implies *I, the speaker, think that you, the hearer, must expect that if we were to arrive late the logical thing would be for our reception to be postponed. Contrary to your expectation, we were received immediately.*

Other negatives are not really collateral, but are hidden forms of positive statements. St. Paul's 'we do not want you to be ignorant' in 1 Thessalonians 4:13 is of this type; the meaning is 'we want you to realize' followed by the content of what the readers ought to know. Here the negative has apparently been raised into the main clause 'we want X' from the embedded 'you should not fail to realize', in which the Greek negative *ouk* is cancelled by the privative *a-* of *agnoeîn* to give the whole meaning equivalent to 'you should realize', incorporated in the stylistic device known as litotes. The same privative enters into the composition of lexical items that denote certain events. These events are named by negation from some other word that also denotes an event, but of a different (not necessarily antithetical) kind: for example, *athetéō* 'disregard' from *títhēmi* 'establish'. Negatives of this kind are not necessarily collateral.

Questions are another grammatical form used for indicating collateral information. They have been discussed frequently in the linguistic literature with regard to the information they presuppose or assume as over against what they inquire about (Fillmore and Langendoen 1971). *When did John get here?* presupposes that John did get here, and that the area of uncertainty is restricted to the time of his arrival. *When did you stop beating your wife?* is more complex; it assumes first that there was a time when you beat your wife, and second that there was a time after which you no longer beat her, and the question is directed toward ascertaining that time. The presuppositions in a question are almost like conditions laid down by the speaker for the hearer to give an acceptable answer. If the hearer accepts the presuppositions, then he can give the missing information that is requested; if not, he is in a bind.

The questions that are most characteristically collateral are polar or yes-no questions, since they invariably impose alternatives. *Will Batman escape?* presupposes an exclusive disjunction, a pair of alternatives only one of which is acceptable: *Either Batman will escape or Batman will not escape; please tell me which is the case*. In English, a positive answer like *yes* or *He will* asserts the positively phrased alternative even if the question is stated using the negative member of the pair: *Won't Batman escape?* expresses the same disjunction, differing from the positive question principally in communicating in the latter case that the speaker already has his own opinion, but that he is interested in getting the hearer's reaction.[6]

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[6] Some languages, including New Guinea Pidgin and Huichol, have a different rationale for phrasing answers to polar questions. The answer in English depends upon selecting the positive or negative member of the implied disjunction, which explains why disjunctions that are not

formed around truth values as such have to be answered in other ways (*yes*, for example, is not an acceptable answer for *will you have coffee or tea?*). These other languages, however, answer with agreement or disagreement with the member of the disjunction that is given in the question. *Bai Batman i ranawe, o nogat?* is equivalent in Pidgin to the English example, and states the positive member of the pair, so that *yes* 'agreed' is equivalent to English *yes* and *nogat* 'I disagree' as an answer is equivalent to English *no*. But if the question is negative, *bai Batman i no ranawe, o nogat?*, then *yes* 'agreed' means that the person giving the answer does not expect him to escape, and *nogat* 'I disagree with the member of the disjunction that was expressed in the question' means that he does expect him to escape. See Litteral 1969.

In any case, polar questions express at least a pair of alternatives. The alternatives remain open regardless of the answer given to them; just because at one point in a discourse one participant expresses an opinion that Batman will escape does not mean that he will. Polar questions are therefore a useful device for introducing more than one alternative at once. Even nonpolar questions with *who*, *what*, *when*, *where*, *how*, *why*, and the like may carry the implication, for a particular discourse, that the person asking the question thinks that there may be more than one possible answer. Which regularly presupposes a set of alternatives from which a choice is to be made. And the use of alternatives as a means of highlighting the particular alternative that actually takes place is central to the idea of collateral information.

Rhetorical questions form a special case in the study of discourse. These are questions for which the answer is implied by regular rules, so that none is actually given in the text, or else for which the same person who asks the question immediately supplies the answer. A well known example of the first is at the climax of Patrick Henry's speech of March 1775 to the Virginia Convention: *Is life so dear, or peace so sweet, as to be purchased at the price of chains and slavery?* The second is found in St. Paul's *Epistle to the Romans* 6:1-2: 'Shall we keep on doing wrong, so that we may be treated all the more graciously? Of course not!'

Some languages, including Huichol, make use of rhetorical questions combined with answers, but never of unanswered rhetorical questions. There may be certain points in discourse at which rhetorical questions are permitted, whereas they do not fit elsewhere; this is the case in Munduruku (Sheffler ms).

Insofar as rhetorical questions introduce information that is different from what actually turns out to be the case, they can be considered devices for introducing collateral information. This is the case with both the examples given above. Patrick Henry is not inquiring into the prospects of a life in chains and slavery; he is setting up a foil against which his use of *liberty* in the next sentence stands out more than it would if he had simply stood up and said *I want liberty*. St. Paul brings up the possibility of keeping on doing wrong only for the purpose of making his negation of that plan of action stronger.

In Sarangani Manobo, however (DuBois ms), what looks like a rhetorical question is used in a way that is distinctly not collateral, but identificational. (Note the use of negation as collateral in the preceding sentence.) The rhetorical question is followed immediately by its answer, and is used to keep track of participants when a group is split. One of DuBois's examples illustrates this: 'Then Ken's wife disembarked and the two of them including Lauretta stayed there at the airstrip. Where were we? We rode the airplane first, the three of us. Then the airplane flew going to Davao. Where were they, Lauretta and Ken's wife? They waited for the airplane to return.'

Given the world the way it is, the prediction of an event is no guarantee that the event will take place. Instead, a prediction states one of several things that might happen and at the same time expresses the opinion of the predictor that that is what will happen, not something else. Other possible happenings may also be predicted or brought into the discourse by means of other collateral expressions. The information about what actually does happen, then, may take several forms. If none of the collateral expressions gave what really happened as one of the alternatives, it must be stated as an event. If it was mentioned ahead of time, however, then it is not necessary to repeat any of the content that formed part of the collateral mentioned, but only to affirm which of the possibilities took place. *They were going to Florida for vacation, but ended up camping in the Adirondacks* illustrates an event not introduced as collateral; *They were either going to go to Florida for vacation or camp in the Adirondacks. They did the latter* illustrates the introduction in collateral of the same event, followed by an anaphoric reference to its mention that gives it the status of a true event.

Predictions come in several degrees of relative firmness: total expectation, probable, possible, and on the negative side, unlikely and impossible predictions. From the point of view of using predictions as collateral information that points out alternatives in discourse, it seems irrelevant which of the possible modalities is used unless there is a dual sense to collaterality: perhaps the event alternative and whether it actually happened or not are one component, and the expectation of the person making the prediction and his feeling in relation to that when the event happens are a second component.

Quotations often give collateral information. An act of speaking in a discourse is, of course, an event in itself; but what is said is usually not. If it has the form of a denial, a question, or a prediction, the three regular forms of collateral I have just discussed, then it is clearly collateral: *She said, "He isn't in the house." But when we unlocked the door, there he was* uses a negative quotation to add significance by contrast to *there he was*. *She said, "Are you looking for Gorham?" When we unlocked the door, there was Simmons* uses a question to suggest a possible find that turns out to be different from the actual find. *She said, "You will find him in the second room on the right." When we unlocked the door, there he was* sets up a prediction in the quotation.

Not all quotations give collateral information. Quotations may also express background information and evaluations: *The doctor said she should watch her weight. So she went on a diet* explains going on a diet by quoting (indirectly in this case) what the doctor said. *As the rocket curved toward orbit, the reporter whispered, "Beautiful!"* conveys an evaluation.

As Longacre points out, furthermore, there are certain kinds of discourse in which there is a standing assumption that what is quoted is what happened. This *dialogue* form of discourse can be considered a specialized version of narrative; it is sequentially oriented in accomplished time. It could be considered the default or unmarked case of collateral quotation, in which only one possibility for each event is introduced via quotation, and since there are no alternatives, what is mentioned is tacitly taken to be what happened: *The canoe glided between the islands*. "*Closer in to the shore*." "*Far enough?*" "*Hold her there while I see if I can raise anyone*." *No answer from the forest*. "*Try again*." "*Hello the island!*" "*Marlowe!*" "*Take her ashore*." Radio drama without narration developed this kind of discourse into an art form; even stage and television plays depend heavily on it, and it is a popular form of oral narration in many languages.

CHAPTER FIVE

THE SPEAKER AND HEARER IN DISCOURSE

Both the form and the content of any discourse are influenced by who is speaking and who is listening. The speaker-hearer-situation factors can be represented in linguistic theory via the notion of *performative* information.

The idea is this (Austin 1962, Searle 1969, Ross 1970): in any language there are certain words called *performatives* which under the right conditions denote actions that are performed in the uttering of the words themselves. When the minister says *I pronounce you man and wife* a couple are thereby made man and wife; if I say *I bet you ten dollars the Cubs will win* you can hold me to it if they lose.

There are, however, restrictions on performative utterances. They must be in the first person and the present tense; the minister cannot say to someone else *you pronounce them man and wife* and thereby perform a marriage, and if he says *I pronounced you man and wife* he is reminiscing, not exercising his office. There are also extra-linguistic conditions that are required to make those performatives stick; in American society, for example, a bartender or a ship captain on shore or a seminary student or an elementary school pupil can say *I pronounce you man and wife*, but only a minister of religion, a justice of the peace, or a ship captain on the high seas can say it in a way that performs the action. In the same way, the people it is addressed to must be of different sexes, above a certain age, and not married to anyone else.

Certain performatives are quite common and are free of special limitations on their use. *I hereby order you to turn left* and numerous equivalent forms are one kind that is so common that there is a grammatical shorthand for it: *turn left*, an imperative. Another large family of performatives can be paraphrased into a form like that of *Somebody stole the garlic. I hereby request you to identify that somebody*. The grammatical shorthand for this is the question form *Who stole the garlic*? By far the largest family of performatives fit the pattern *I hereby inform you that your back porch just fell off*, for which the conventional shorthand is the declarative *Your back porch just fell off*. Behind even simple utterances, then, it is possible to say that there stands a performative element that recognizes the identity of the speaker, the hearer, and the situation within which they are communicating.

The recognition of implicit performatives behind commands, questions, and statements, as well as explicit performatives, paves the way for linguistic handling of situational factors in discourse. Specifically, it gives a place in linguistic analysis for what are conventionally known as *deictic* (pointing) elements like 'this' and 'that' or 'here' and 'there', and for person categories like 'me' and 'you'. Assuming a performative behind every discourse, and even behind parts of discourses in addition to the global performative, makes it possible to talk about persons, time, and place in a way that would be very hard to explain otherwise within the bounds of a theory of language.

In the case of persons (and for that matter, objects) the recognition of the speaker-hearer axis in communication is the basis for assignment of person categories. This seems trivial or obvious for a discourse that has a single performative like 'I, the speaker, hereby inform you, the hearer, that ...' that dominates it; there the person speaking is always _I_ and the person spoken to is always _you_. Pike and Lowe, however, have probed one class of discourses in which this simple assignment is not possible (1969, see also Lowe 1969).

Their case involves a situation in which three individuals, call them Al, Bill, and Charlie, or A, B, and C, are talking. Suppose that A is speaking to B; then A is _I_ and B is _you_ and C is _he_. But now suppose A says to B, "You said to him, 'I see you.'" The last instance of _I_ does not refer to A but to B, and the last instance of _you_ does not refer to B but to C, even though the whole thing is spoken by A to B. The key to understanding the person assignment is that every instance of direct discourse introduces a new, limited, and local performative in which the person who utters the direct quotation is _I_ and his hearer is _you_, regardless of what other performative dominates. Lowe presents a theorem based on the theory of finite permutation groups, which as far as I can tell predicts all cases and works for all languages, for any depth of embedding of performatives via direct quotations.

Performatives are pertinent in the identification of participants in other cases besides direct discourse, but in a different way. In direct discourse person assignments are derived by Lowe's Theorem from the immediately dominating performative. The assignment of persons in that performative is taken from the one that dominates it, and so on up the ladder until the highest is reached. Everywhere else, however, including indirect discourse and statements, person assignments are taken directly from the most remote performative; that is, the one that dominates the entire discourse and therefore reflects the actual speech situation. This shows up if we paraphrase the example just given in such a way as to show the performative elements:

(a) I, the author, hereby inform you, the reader, that
(b) ← A said to B, quote (new performative)
(c) ←—— "I, A, hereby inform you, B, that
(d) ←———— you, B, said to him, C, quote (new performative)
(e) ←—————— "I, B, hereby inform you, C, that
(f) ←———————— I, B, see you, C.'"

Any paraphrase of this that uses only indirect discourse goes into the third person and is highly ambiguous in English even with full intonation, because neither A nor B nor C is the author or the reader: *A said to B that he said to him that he saw him*. With explicit identification of C there is less ambiguity, but still enough to inhibit communication: A said to B that he said to C that he saw him.

In addition to the identifications that relate to performatives, there are other less easily recognizable factors whose effects can be seen in the outer form of language and that find their place in the conceptual scheme of linguistics by virtue of their relation to performatives. Here, first of all, is where the speaker's entire image of himself as a person is accessible to the linguistic system.[1] Here also is the place in linguistic structure for registering the speaker's assessment of who the hearer is, what he knows, how he feels, and what he might do as a result of what the speaker says. Both images may change during the course of speech as a result of feedback signals from the hearer to the speaker; but it is in terms of what the speaker holds about both himself and the hearer at the moment that he phrases what he says next.

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[1] As Aristotle says, 'the speaker ... must give the right impression of himself' (*Rhet*. 2:1). He also points out constraints between who the speaker is and what he says: 'In a young man, uttering maxims is--like telling stories--

For example, I, the author, estimate you, the reader, to be generally informed about the field of linguistics, and as a consequence I write *noun phrase* without bothering to give you an explanation. I expect that you are mildly interested in the subject of discourse and highly interested in one or two points. Because I do not know which of the points I am making those are, I try to say enough on each that you can grasp what I think about it. At the same time I try to give enough signals about the relationships between one point and another that you can skim anything of which all you want is the drift.

On the other hand, if I thought that you were a high school student, required perhaps by the state board of education to take a course in the discourse patterns of English in order to graduate, but were really more interested in what is going to happen at football practice, the whole presentation would be different. I might even tell better jokes. I would certainly leave out most of the explanations and alternative hypotheses, and would present English discourse structure on a take-it-or-leave-it-but-it-makes-sense-to-take-it basis. Rather than giving only enough

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unbecoming, and to use them in a realm where one lacks experience is stupid and boorish' (*Rhet*. 2:21).

examples that a motivated person can pick up one and then supply as many as he wants of his own, I would give a range of examples for each point and reinforce them with exercises in which you would either have to find your own examples or show how some new examples (called 'problems') relate to ones already given. I would not talk about Mundurukú or Manobo unless I thought that doing so might make something in English easier to understand. Furthermore, my estimate of you would not change, because the only feedback I could get would be after I had finished writing the book and had tried it out in the classroom.

Aristotle notes (Rhet. 1:9) that 'whatever the quality an audience esteems, the speaker must attribute that quality to the object of his praise, whether the audience be Scythians, or Spartans, or scholars'.

The performative element not only serves to relate persons to the discourse, but also to act as the zero point for time reference. In terms of Litteral's time index discussed in 3.1, the time axis of a discourse can be represented by the real number line. Zero matches the time the actual activity of uttering the discourse begins, the negative part of the line matches things that happen before then, and the positive part matches both the uttering of the discourse itself and events in the future that are talked about. Each event, including the uttering of the discourse itself, would then be represented by an open set of points on the time line, indexed as described earlier.

English words like now, ago, and yet have explicit reference to the relation between the time of speaking and a time referred to. Other words are independent of this relation; Pidgin nau, for example, even though it comes from English now, refers in narrative to the next thing in the sequence being narrated, not to the time of narration.

Tense systems are defined at least partly in terms of this correspondence between the time relations that are inherent in what happens and the relation of the happening to the telling. Some tense systems, like that of Halia (Jerry Allen ms), divide this area rather fine: the Halia past tense includes events up to and including the day before the day on which speech takes place. The nonpast is further divided into completive, progressive, and the intentive aspects, which in terms of the time framework correspond to events that took place earlier on the day of speaking, events in progress at the time of speaking, and contemplated events.

Relationships between the time of happening and the time of speaking may be indicated overtly as in Halia, or they may be established by a single time reference and then not mentioned again. This is somewhat like the English historical present: First he goes and finds the girl, then he shows her the ring can be either a blow-by-blow description of something that is happening at the time of speaking (visualize a detective hidden in the arras whispering into a tape recorder) or a narration of something that happened, say, three thousand years ago, told so as to create an air of immediacy. Intermediate between the use of tense to index every event for time and the total absence of time indexing is the indexing by paragraphs reported by Dye for Bahinemo (Longacre 1968). A dependent clause at the beginning of each Bahinemo narrative paragraph gives the relation of the paragraph as a whole to the time of narration; from there on the narration of the events that take place is tenseless.

Tense displacement was mentioned in connection with the use of antecedent events and foreshadowings for explanation in 4.2. In English the past perfect forms regularly indicate displacement out of the main time line of a discourse into a subsidiary time line (or into a segregated section of a single time line, more properly): The car arrived at ten. They had been delayed by a flash flood outside of town. We got in and left anyway, hoping to make up the time on the open highway. Dependent temporal clauses with nonpast verbs, introduced with words like after, before, and while, or independent clauses with future verbs, denote time displacements projected into the future from the time of speaking. Collateral forms (4.4) involving questions and predictions regularly signal displacement into the future.

The place where an act of speech occurs is also part of the performative information for that act of speech. The position of speaker and hearer relative to each other, their surroundings, and the relationships between all this and the things they are talking about influence to a certain extent the linguistic forms they choose.

For example, when talking about things in the immediate speech situation, English speakers distinguish this, something near the speaker, from that, something not near the speaker, though possibly near the hearer. When talking about abstractions or about things outside the speech situation, however, the use of this and that loses its spatial component and takes on a reference to what the speaker has or has not said already: The point is this: you have to forget all that has this pointing ahead to what the speaker is about to say and that pointing back to what has already been said (Halliday 1967b). Portuguese makes a three-way spatial distinction: este for something near the speaker, esse for something near the hearer, and aquele for something relatively remote from both. Ilocano (Thomas) has four degrees: near the speaker, near the hearer, near both, and remote from both. In Huichol there is a complex system of reference either to the surface of the earth as seen by the speaker or to position on the body of a human or animal (Grimes 1964).

Bacairí (Wheatley ms) makes a four-way distinction in pronouns that depends partly upon how they are related to the situation of speaking. mira 'this one' refers only to someone relatively close to the speaker; in the case of an embedded performative, it can be used with reference to the speaker who uttered the embedded performative. maca when defined in relation to the performative refers to someone far away but in sight of the speaker, while auaca refers to someone closer. Overlapping the performative oriented pronouns, however, is a discourse oriented system that makes no reference to the situation of speaking, but only to what is being said. At the end of this scale is inara 'he', which can refer only to someone who has already been identified verbally. maca and auaca also play a part in this system; but when they are used in relation to the verbal context rather than the context of the act of speaking maca refers to a participant who has been placed in focus,[2] in the center of the stage as it were, and auaca refers to any other nonfocal participant. (There are also inanimate and athematic counterparts for the four mentioned here, which are animate and thematic.) Some discourses have a point of confusion that comes about like this: First maca 'he, far' and auaca 'he, near' are used to introduce participants that are present in the situation of speaking. Then the nearer participant is taken as focal with reference to the discourse, and the system shifts so that the speaker is using maca 'he, focal' for the nearer character and auaca 'he, nonfocal' for the more distant one. This shift from situational to textual reference gives the effect of a flip in pronoun reference in the middle of a text.

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[2] In terms of Chapters 19 and 21, Wheatley's focus would probably be considered a kind of high level theme.

In Oksapmin (Helen Lawrence ms) events are told relative to a setting. This setting may be defined by where the speaker is located as he is speaking, or it may be defined by where somebody who reported the scene to the speaker was located when he observed it. In either case the setting has an imaginary boundary: the walls of a room, the rim of a valley, the bounds of a village, the shores of the island of New Guinea. This boundary is never made explicit. The use of words like matai 'here' and atai 'there', moh 'this one' and oh 'that one', masoh 'along here' and asoh 'along there', however, is always split with reference to that boundary, so that the proximal words (the ones that begin with m-) refer to locations inside the boundary and their distal counterparts refer to locations outside the boundary. The hearer is left to deduce where the boundary is. English near/far seem to be distinguished in a similar way. Bierwisch (1967) has discussed a number of relative factors of this kind in reference.

In addition to position relative to the speaker and hearer, some languages distinguish motion relative to the speaker and hearer. These motions may involve a reference surface in addition to the position of the speaker and hearer themselves, as in the Anggor distinction between motion upstream from the speaker, downstream from the speaker, down a declivity from the speaker, or across a stream from the speaker (Shirley Litteral ms).

The properties of English go and come when used in relation to speaker and hearer have been discussed by Fillmore (1968). It seems to be a quirk of English that come not only implies motion in the direction of the speaker, as in come here, but also motion in the direction of the hearer, as in I'm coming to your side of the room. Furthermore, in the case of projected time, the motion is not necessarily in terms of where the speaker and the hearer are at the time of speaking, but may be in terms of where either the speaker or the hearer expects to be at the time of the projected action: I'll come over to your house on Tuesday implying that the speaker expects to find the hearer home, or Come to the park for supper, implying that the speaker expects to already be in the park.

In Saramaccan Glock and I found that the distribution of verbs meaning 'come' and 'go' (1970) permitted me to identify where Glock had recorded one text. kam 'come' always implies motion in the direction of the speaker, while go 'go' is used for motion in any other direction. Every kam in the text but one pointed toward the city of Paramaribo, which is outside the Saramaccan area but is where the recording was in fact made. The exception involved a local performative in which one participant sent a message requesting his brother to kam to where he was when he sent the message, so that that instance fit the pattern defined by the performative as well.

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Pull and push, bring and take, and get and put seem to parallel come and go not only in English but in other languages. In a number of languages of the Philippines (Hettick ms, for example) the stems for 'bring' and 'take' are the same, as are the stems for 'get' and 'put'; but the possibilities for taking grammatical focus markers differ. In terms of semantic roles (Chapter 8) verbs of the 'bring' variety uniformly fit a pattern of acquisition verbs, in which the Agent moves a Patient toward himself as Goal; while their 'take' counterparts involve the same stems potentially inflected to show that the Agent moves a Patient away from himself as Source; the Agent may move with the Patient, as in the case of verbs for 'carry', or the Patient may move away without the Agent, as in 'throw'. The 'get' and 'put' set, in addition, take on perfective or resultative meanings that link them respectively with 'have' and 'be'.

Some languages link expressions of time to expressions of motion in terms of the performative. Paul Freyberg (personal communication) has called to my attention the repetition in New Guinea Pidgin of i kam i kam i kam 'on and on he comes' or i go i go i go 'on and on he goes' in a temporal sense. The repeated forms follow the main verb in a verb phrase. They come in an aspect position that can also be filled by stap 'continue' and pinis 'complete'. I kam i kam (repetition is part of the expression, but the particular number of repetitions is more like an iconic representation of extent, with more repetitions for more time) in the aspect slot refers to the time of an earlier event that is extended toward the time of speaking, while i go i go refers to the same extension from the point of view of a participant in the action and the time of happening.

Both Huichol and ancient Greek seem to conceptualize time linguistically in terms of a hillside on which the speaker stands. In Greek the past is uphill (*ana*) and the future downhill (*kata*). In Huichol, on the other hand, future time is uphill from the speaker and past time downhill. Some Huichol time words, furthermore, have the form of verbal words with directional prefixes appropriate to a hillside perspective. For time ahead, for example, the usual words are *?uza+?áa* 'tomorrow', *waaríe* 'day after tomorrow', *?aayei+mána* 'the day after the day after tomorrow, three days hence', the verb-like *ranuti+?áayéi+mána* 'up to the top of the day after the day after tomorrow, four days hence', and *zei* *máná+yaaricíe* 'on one time unit ahead, five days hence'. The analogous series in the past is *tákái* 'yesterday', *?aatu* 'day before yesterday', the verb-like *ranuka+?áatu* 'down behind the day before yesterday, three days ago', and *zei* *?áatú+yaari+cíe* 'on one time unit behind, four days ago'.

CHAPTER SIX

KINDS OF INFORMATION IN DISCOURSE

1. A WORK SHEET

The idea of different kinds of information in a text is more easily put to use if there can be a display of text that lays out each kind of information in a way that can be assimilated at a glance. Figure 6.1 is the skeleton of such a display. It is a development of the diagrams used by Gleason and Cromack. Mickey Stout developed a horizontal version of it which she fastened at eye level around the walls of a room to display an entire text. The current form was worked out by Robert C. Thurman, who used it in his study of Chuave (ms).

The vertical columns on the chart correspond to the various kinds of information distinguished in texts: events, identification, setting, background (which to save space includes evaluations), collateral, and performative. To keep the chart from being crowded, I use the convention that information of a particular kind is written beginning under the corresponding heading, but the rest of the information may be carried as far to the right as needed; this is more convenient than trying to keep everything within narrow vertical columns. The parallel vertical lines are for the participants, one line per participant. For each event a line is drawn from the lexical elements that represent the event to the vertical lines that represent the participants in the event. Where identifications are given for the participants, lines are drawn from the other side to show which identification belongs with which participant.

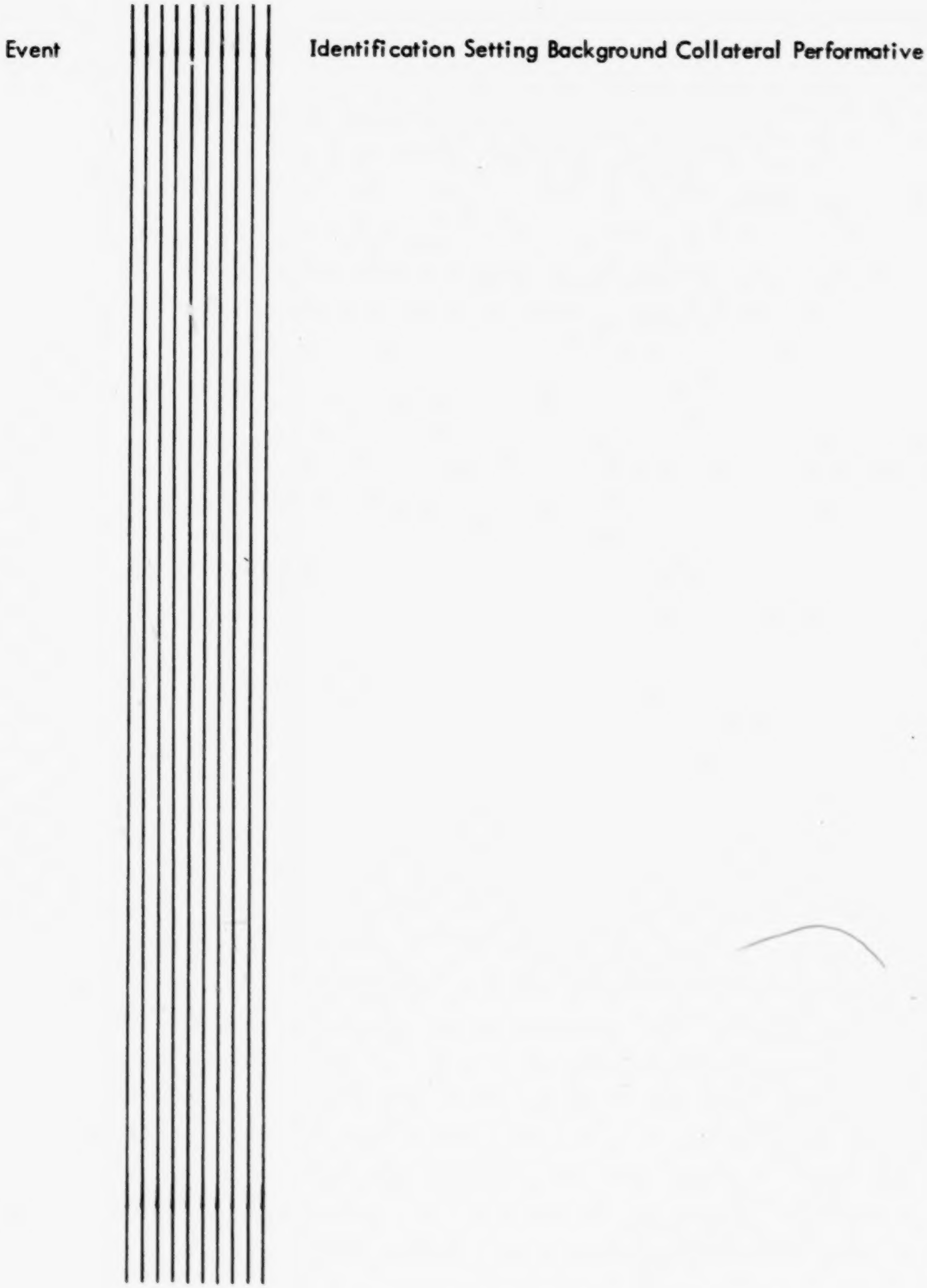

Event
Identification
Setting
Background
Collateral
Performative

Figure 6.1. A blank Thurman chart.

The most comfortable working format is to match a Thurman chart with a page of text. The text is written out, double spaced, at about one clause per line. Some clauses require more than one line, and one may not be able to decide what a clause is until after the analysis is finished; but in general the clause is a convenient chunk to work with. The text page is fastened to the Thurman chart with the text on the left and the chart on the right, as in Figure 6.2. Then the information from each clause is copied into the appropriate place on the chart. If there seems to be no place on the chart that is appropriate for some piece of the clause, as sometimes happens in the case of connectives, that information is put in one of the margins of the chart as a residue.

I have taken for illustration a narrative in English, the opening sentences of C. S. Lewis's *Out of the Silent Planet*. The first clauses appear on the left in Figure 6.2. On the Thurman chart on the right of Figure 6.2 the events in this section of the narrative are copied opposite the clauses they come from, and each event is connected to one (the leftmost) participant line to indicate that it is a single person who *stuffed his map into his pocket* (2), *settled his pack on his shoulders* (3), *stepped out* (4), and *set out at once* (10). If other participants were involved in the events, each of them would be connected to a separate participant line.

Figure 6.3 takes the chart one step farther. Here the identificational material connected with each event is added and connected up to show reference. (Here, since there is but one participant on stage, the connections are obvious; but where there are two or more participants this is not always so.) The participant is first brought onto the scene as *the Pedestrian* (2). In the next two clauses, which represent a tightly knit sequence of actions that could

1. The last drops of the thundershower had hardly ceased falling
2. when the Pedestrian stuffed his map into his pocket,
3. settled his pack more comfortably on his tired shoulders,
4. and stepped out from the shelter of a large chestnut-tree into the middle of the road.
5. A violent yellow sunset was pouring through a rift in the clouds to westward,
6. but straight ahead over the hills the sky was the colour of dark slate.
7. Every tree and blade of grass was dripping,
8. and the road shone like a river.
9. The Pedestrian wasted no time on the landscape
10. but set out at once with the determined stride of a good walker
11. who has lately realized that he will have to walk farther than he intended.
12. That, indeed, was his situation.
13. If he had chosen to look back,
14. which he did not,
15. he could have seen the spire of Much Nadderby,
16. and, seeing it ...

Figure 6.2a. Text written out by clauses.
C. S. Lewis, Out of the silent planet, Page 1

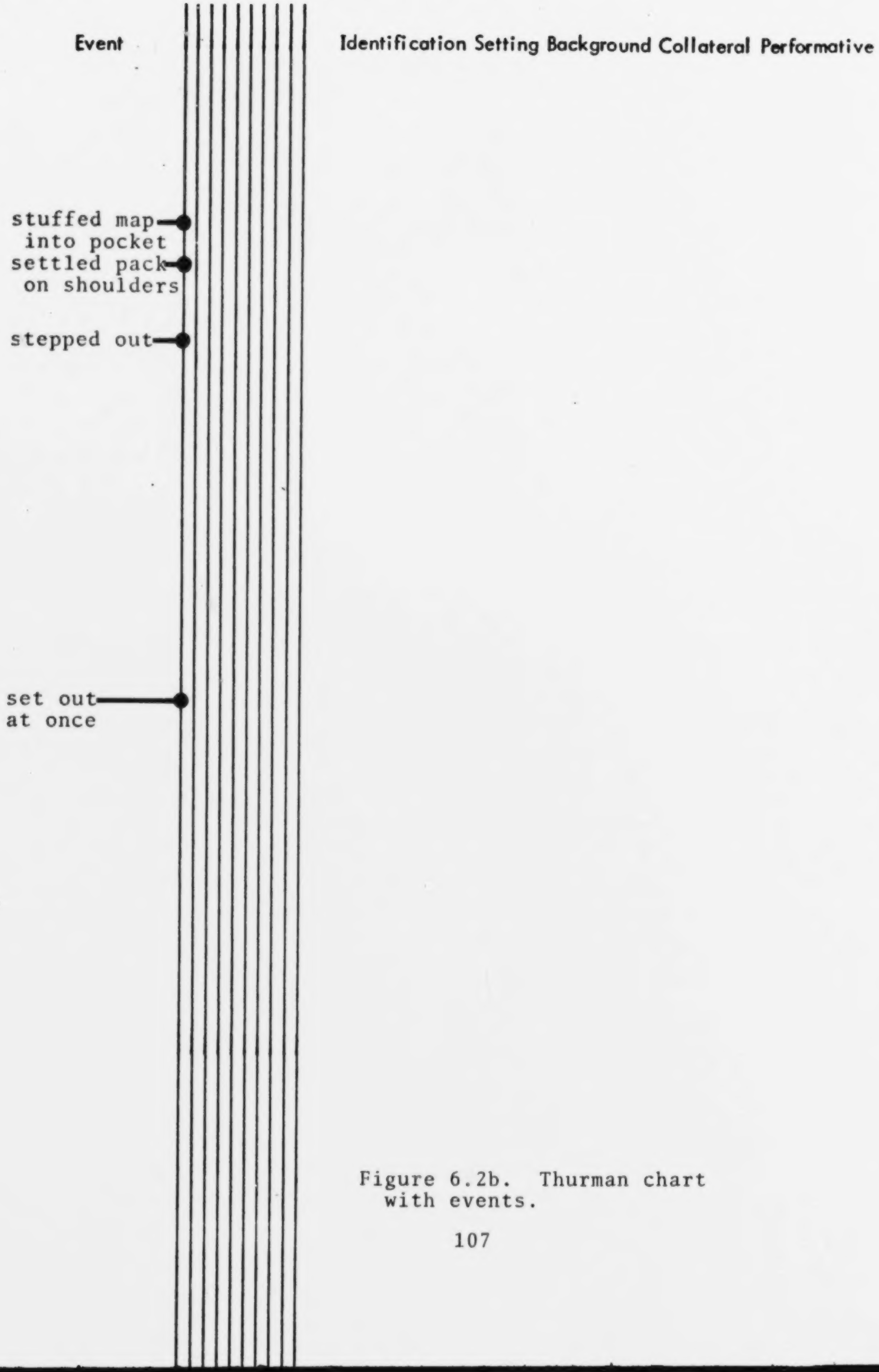

Event
Identification Setting Background Collateral Performative
stuffed map into pocket
settled pack on shoulders
stepped out
set out at once

Figure 6.2b. Thurman chart with events.

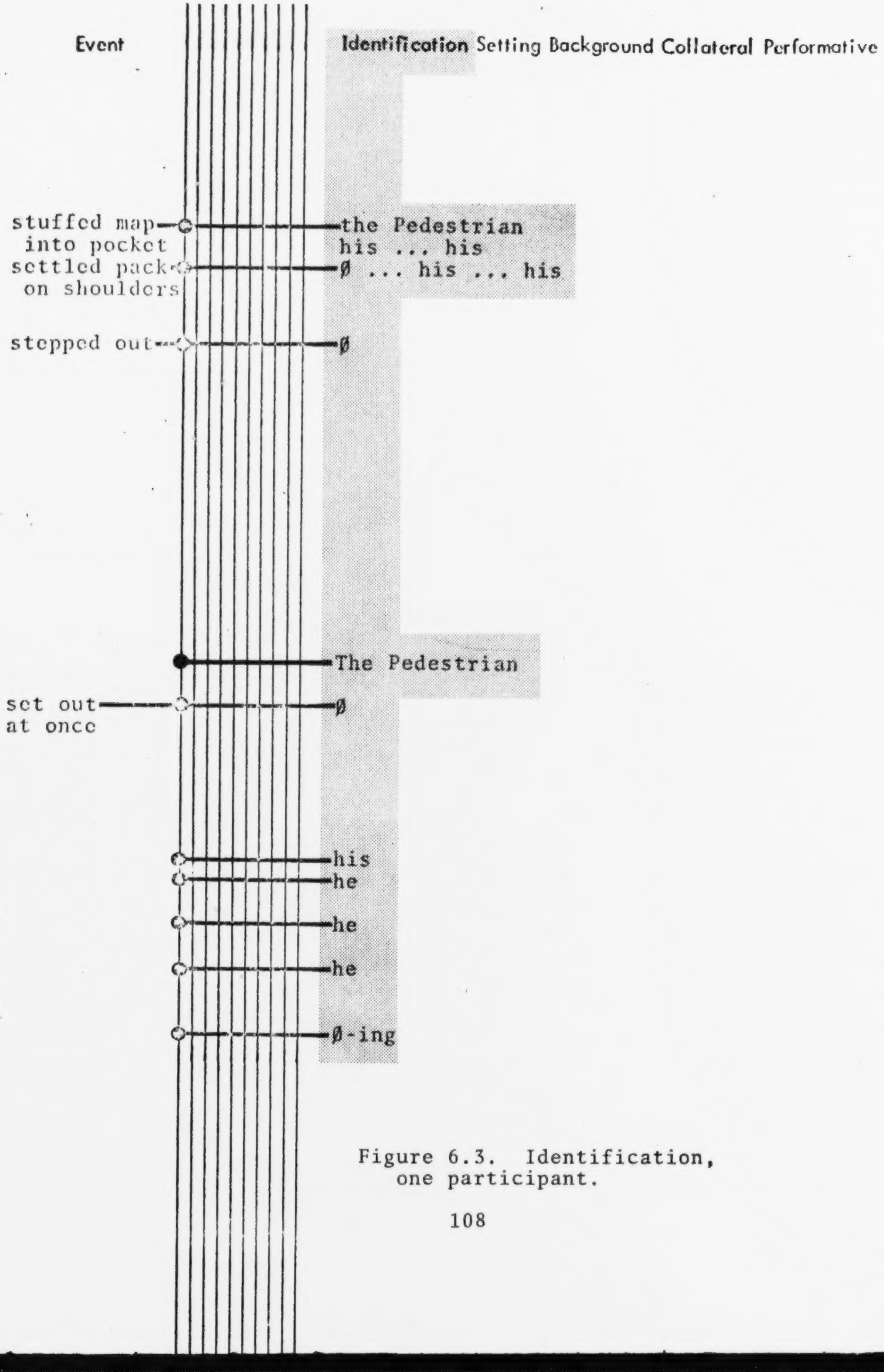
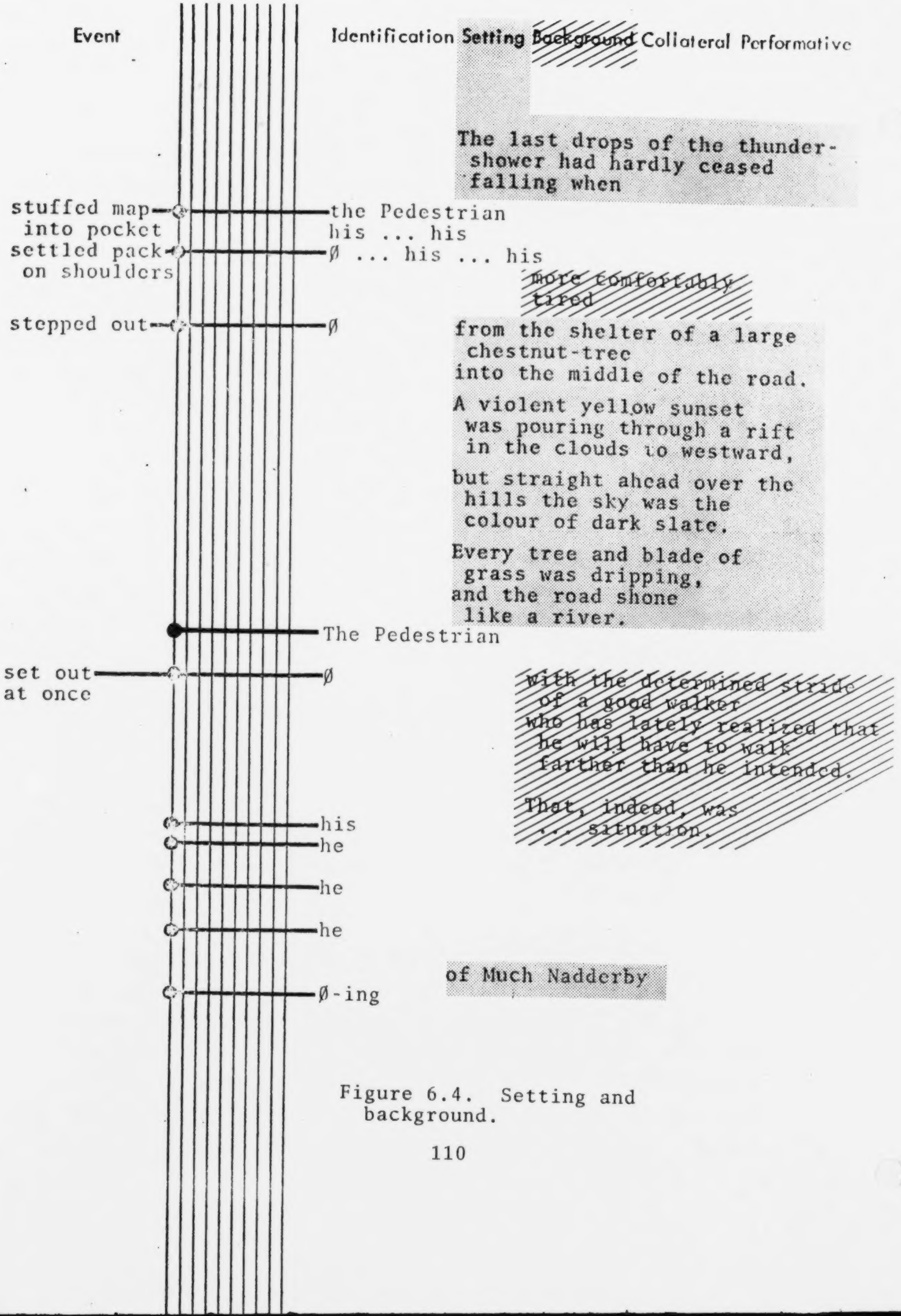

Event
Identification
Setting
Background
Collateral
Performative
stuffed map into pocket
the Pedestrian
his ... his
settled pack on shoulders
∅ ... his ... his
stepped out
∅
The Pedestrian
set out at once
∅
his
he
he
he
∅-ing

Figure 6.3. Identification, one participant.

be taken as aspects of a single action, he is not identified at all as the doer of the actions, but is only mentioned indirectly by *his* (3). *The Pedestrian* is repeated in 9, after a scenic interlude, in an identification that spans the event in 10 as well as 9 by means of the conjunction *but* in 10. In non-events 12 through 15 the participant is identified by *he* and *his*, but in 16, even though he is the one who would have done the seeing, he is not identified explicitly, but only implicitly through the agreement of the participial construction.

Figure 6.4 adds setting information. Many narratives begin with nothing but setting and identification and get down to the business of events only after a few hundred words of the other. Here, however, events are interspersed with setting from the start: *The last drops of the thundershower had hardly ceased falling when* ... (1), ... *from the shelter of a large chestnut-tree into the middle of the road* (4), *A violent yellow sunset was pouring through a rift in the clouds to westward* (5), *but straight ahead over the hills the sky was the colour of dark slate* (6), *Every tree and blade of grass was dripping* (7), *and the road shone like a river* (8). The village name *Much Nadderby* (15), though part of a collateral section, is secondarily part of the setting system as well.

Figure 6.4 also includes background information. A bit of minor background in 3 tells how the Pedestrian felt as the scene opened: *more comfortably* suggests that his pack was less than maximally comfortable, and *tired* explains the basis for his subsequent thoughts about the hospitality of Much Nadderby. Sentence 12 refers to the same feeling anaphorically in *That, indeed, was his situation*,


Event
Identification
Setting
Background
Collateral
Performative
stuffed map into pocket
settled pack on shoulders
stepped out
set out at once
the Pedestrian
his ... his
Ø ... his ... his
Ø
The Pedestrian
Ø
his
he
he
he
Ø-ing

The last drops of the thunder-shower had hardly ceased falling when

more comfortably tired

from the shelter of a large chestnut-tree into the middle of the road.

A violent yellow sunset was pouring through a rift in the clouds to westward,

but straight ahead over the hills the sky was the colour of dark slate.

Every tree and blade of grass was dripping, and the road shone like a river.

with the determined stride of a good walker who has lately realized that he will have to walk farther than he intended.

That, indeed, was ... situation.

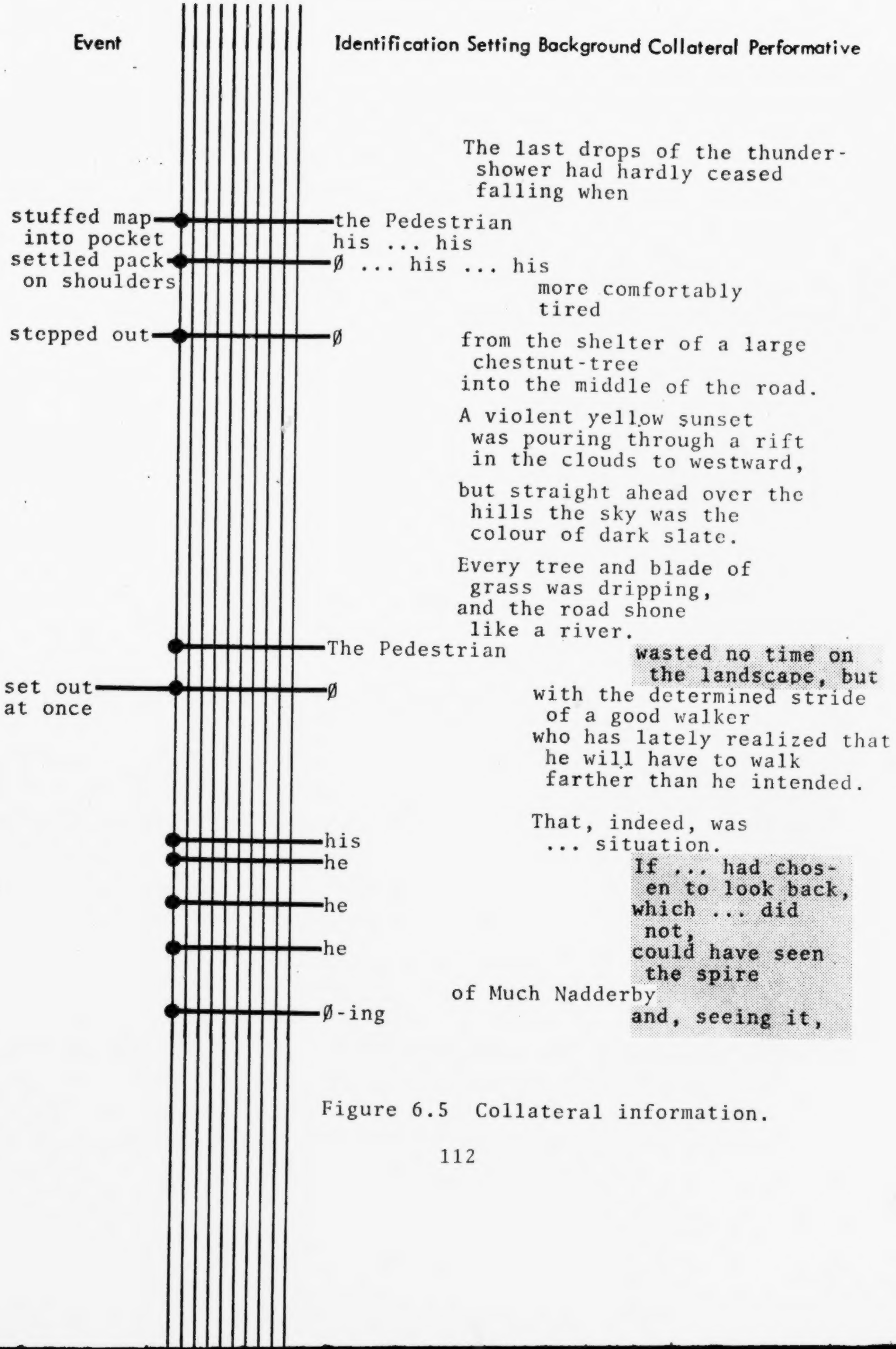
of Much Nadderby

Figure 6.4. Setting and background.

which uses the hypothetical description in 10-11 to expand on the simple physical weariness of 3.

The ninth clause is a classical piece of collateral. It highlights what the Pedestrian did do by telling first what he did not do: *wasted no time on the landscape but* ... The last four clauses also tell what he did not do, and what the consequences would have been if he had done it; in the process information about the setting, and later on in the passage information about background, are also brought in almost incidentally. Figure 6.5 shows the collateral information added to the chart.

The performative information, in which the relation of speaker to hearer (author to reader in this case) and the speech situation (here, reading what is known to be a work of fiction) are taken into account, does not show up as coherent stretches, as in *I am going to tell you what happened to a friend of mine on a walking tour* or *Bet you thought he would stop to admire the landscape, didn't you*?, which a less skilled raconteur might use. Instead, the author cuts corners by forcing the reader into making many small assumptions that project the reader more precipitously into the scene; the narrator does not have to lay his groundwork in the heavy footed way a trial lawyer does. The definite article of *the thundershower* in 1 says, 'I know and you know what thundershower we are talking about; so I won't delay things by telling you that one took place.' *The Pedestrian* (2), *the road* (4), *the clouds to westward* (5), and *the hills* (6) manipulate the definite article in the same way, treating them as already introduced and therefore needing no further preliminaries. (*Pedestrian* actually


Event
Identification Setting Background Collateral Performative
stuffed map into pocket
settled pack on shoulders
stepped out
set out at once
the Pedestrian
his ... his
Ø ... his ... his
Ø
The Pedestrian
Ø
his
he
he
he
Ø-ing

The last drops of the thunder-shower had hardly ceased falling when
more comfortably tired
from the shelter of a large chestnut-tree
into the middle of the road.
A violent yellow sunset was pouring through a rift in the clouds to westward,
but straight ahead over the hills the sky was the colour of dark slate.
Every tree and blade of grass was dripping,
and the road shone like a river.
wasted no time on the landscape, but
with the determined stride of a good walker
who has lately realized that he will have to walk farther than he intended.
That, indeed, was ... situation.
If ... had chosen to look back,
which ... did not,
could have seen the spire
of Much Nadderby
and, seeing it,

Figure 6.5 Collateral information.

sneaks in a good amount of information at the same time that the is cozying up to the reader by suggesting experiences previously shared by him and the author. If Lewis had actually been talking to a friend about a situation they both knew, however, he would not have had to make sure, as he does here, that before too many paragraphs went by the Pedestrian had been identified as a Cambridge don named Ransom out on a holiday and had given his height, age, and dress. The friend would have known.).

Other performative information appears under other guises than the definite article used in places where a man from Mars might not know what to make of it. His man (2) and his pack (3) are also definite, and in the same way say, "I know you remember what he looked like; just let me remind you of a couple of details of it." Grass (7) is a mass noun used in the same definite sense: "You remember the scene where it took place. There was a chestnut-tree beside a road that went through a grassy place, then on into some hills; and he was not headed west." Even the introduction of the village is by name, direct, as though it were a common scene for the author and the reader alike.

A few of the definite forms do not reflect the assumed relationship between author and reader in this way. Instead they reflect what the author assumes the reader knows in terms of broadly shared experiences of life. The last drops (1) are a natural part of any thundershower, a pocket (2) is standard equipment of any pedestrian in temperate climates (though the use of clothing plus the distinctively English form of village name could be construed as indirect information, "I expect you to realize that all this took place in the English countryside"), and once you admit a pedestrian you would be highly surprised unless he had shoulders (3). Even the spire (15) is a standard architectural characteristic of small English towns cited in literature, and therefore highly predictable.

The descriptive phrase of 10 and 11 relates to the speaker's assessment of the hearer that is implicit in the performative in the following sense: "You know how a good walker goes into a determined stride if he has lately realized that he will have to walk farther than he intended? Let me evoke that image in connection with what happened." On the other hand, since anything at all in the vocabulary evokes some sort of image in the same sense, it might be better not to lay stress here on the immediate speaker-hearer relation, especially since the author is not suggesting that the reader should be thinking of a particular good walker who has revised his navigation. If it were that particular, it would put the descriptive into the category of an embellishment of the event itself.

The display of information given on a Thurman chart of text is the first step toward looking for systematic relations among parts of the text. It gets things out where we can see them.

2. SPAN ANALYSIS

From there it is possible to go on to another level of abstraction further removed from the text itself, namely the plotting of spans. Spans represent stretches of text within which there is some kind of uniformity. Certain kinds of uniformity have already turned out to be useful for characterizing discourse structure in several languages, and so are mentioned here. It would be surprising if there were not other kinds of spans that are relevant.

If we take a page and write clause numbers down the left hand margin corresponding to the clause numbers on the Thurman chart, though more closely spaced, we have a framework for a plot of spans in text. Each span is represented by a vertical line, sometimes broken by a horizontal line or interspersed by symbols. This representation makes it possible to put many spans on a single page so that they can be compared with one another.

Setting spans are the most obvious ones to look for in narratives. One vertical line indicates all the actions that take place in a single spatial location, and another vertical line indicates all the actions that take place in a single time sequence. A horizontal line that shows where a span is broken is useful for matching spans across the page. If a time index backs up to repeat a sequence, or if there is a resetting of the time of an action in terms of another hour or day, this starts a new time span.

It is possible to plot spans for each of the seven distinct kinds of information in discourse that I have discussed: events, identifications, settings, background, evaluations, collateral, and performatives. A series of clauses that gives a sequence of events, for example, appears as a vertical line, while another series dedicated to background information is represented by another line. If seven lines are dedicated to different kinds of information, this part of the span chart is equivalent to a compressed version of the Thurman chart. As such it can be quite useful in that it presents the same information in a less detailed way that makes it comparable with still other spans.

For plotting identification within this framework, however, it is useful to go into more detail than simply to show which clauses are identificational. In Figure 6.3, for example, there is a regularity about the ways in which the identity of the sole participant is expressed. First he is the Pedestrian; then there are four references that involve him: his map, his pocket, his pack, and his tired shoulders. In the next clause he is referred to but is identified only implicitly. Then four clauses go by without any reference to him. The next time he appears he is given an identification that is as complete as the identification by which he was brought on stage: again he is the Pedestrian. The reference to him that follows in 10, like the one in 4, lacks explicit identification. Then 12 through 15 use his and he, followed by no identification in 16.

The pattern here is common enough in different languages that I would label it a series of identification spans. An identification span consists of a series of identifications of the same participant, not necessarily in contiguous clauses, in which no identification is stronger than the one before it. Strength of identification is a ranking that goes from proper names like George Washington Carver to explicit descriptives like the mechanic who fixed our generator in Arkansas to common nouns like the teacher to nouns used generically like the fellow to pronouns like him to reference without identification. The text in the example contains three identification spans for the lone participant. First comes the Pedestrian in 2, used somewhat like a common noun and somewhat like a proper noun. The rest of that span takes in the pronouns in 2 and 3 and ends with the zero identification of 4. The second span begins with the explicit *the Pedestrian* in 9 and ends with the zero identification of 10. The third begins with the pronouns of 12 through 15 and ends with the zero identification of 16. Where identification spans are plotted, it is wise to plot spans for each participant on different vertical lines.

Since tense and aspect sequences seem to be closely tied to the structure of discourse, and since they rarely have simple explanations, spans within which all the verbs have the same tense or the same aspect should be plotted. When this was done for Xavánte (McLeod ms), comparing the points where the aspect changed with the spans for each kind of information showed that confusion in understanding the aspect system had arisen from the fact that events operated under one aspect system and nonevents under another. Some of the aspectual indicators were used in both systems, but with different values.

Another column of the span chart should be dedicated to a problem that is so widespread in linguistic analysis that I refer to this as the PLP column, for Pesky Little Particle. Most languages have particles whose use seems to be related to gluing the parts of discourses together but which are never easy to pin down. In English they are words like *now*, *either*, *moreover*, when used to relate more than one sentence. In Huichol they include both words like *méri+kʌʌte* 'well, then' and postfixes (suffix-like forms that follow enclitics) like -*ríi* 'definitely'. Writing them out in the PLP column makes it possible to compare their pattern of occurrence with the beginnings and endings of other spans and often leads to a useful understanding of what they are for, as for example in June Austing's study of Omie (ms).

There are three other types of phenomena that lend themselves to representation on a span chart, but that cannot be described compactly enough to mention further in this chapter. They are participant orientation sequences (Chapter 18), placement of new information (Chapter 19), and theme sequences at various levels (Chapter 21). By the time they are discussed it should be obvious to the reader how to fit them in.

Figure 6.6 is a span chart for the same text fragment that was used as an example in the earlier part of this section. The lines representing kinds of information are a condensation of Figure 3.6; the plots of identification spans, tenses, and particles are likely to be relevant for a discourse grammar of English. As can be seen, there are correspondences between spans. For example, the new identification span begun in 9 follows the extensive setting span that begins in the latter part of 4 and continues through 8. The use of the past perfect tense in 13 and 15 goes with the collateral relationship of that string of clauses to the rest. Other regularities are not so noticeable from this chart alone, but would appear on examination of a number of texts: for example, the zero identification of the subject or agent in 3 and 4 is possibly under the condition that the actions are closely related as phases of a single action that begins in 2, and that no other kinds of information such as background or collateral clauses break the sequence. The zero identification in 10, however, is an instance of a different pattern. Rather than representing a tight sequence of actions, it is one side of a collateral pair; but a similar condition to that of the event sequence holds in that the pair cannot be interrupted at that point by, say, background if zero identification is used in the second member.

Other relationships are not so readily represented on a chart of spans because they involve inflections and function words within clauses. They can, however, be marked on the Thurman chart itself. This is the place where anaphoric and cataphoric relationships can be plotted out, for example. In *anaphora* a pronoun or pronoun-like element has the reference of something before it in the text. In the sample *his* in 2 has been defined earlier by *the Pedestrian* in the same clause, while *That, indeed, was his situation* of 12 has had its semantic content fully specified by 10 and 11; both are anaphoric. *Cataphora*, on the other hand, presents a reference together with a promise to identify it later. *Here's what we'll do* is cataphoric; *here* has no previous reference in the text (if there were a previous reference, *there* or *that* would be the correct form to show anaphora) and *do* has no content.

Thurman (ms) has singled out two special kinds of text relationship that deserve notice. *Linkage* is his name for a particular kind of anaphoric relation, and *chaining* is his name for a particular kind of cataphoric relation. In a number of languages events must be linked to preceding events by a repetition of those events: *They went down to the river. Having gone to the river, they entered the canoe. Having entered the canoe, they began to paddle. Having begun to paddle* ... In a system that makes extensive use of linkages it is the absence of a linking clause that catches the hearer's attention; this asyndeton or break in the sequence may be used to signal a change of scene or a shift of participants or a transition to background information or even a point of special emphasis.[1] The most striking linkage pattern I have come across is in Kayapó (Stout and Thomson 1971), where each paragraph of a narrative is preceded by a linking paragraph that is an almost exact repetition of the preceding narrative paragraph.

Chaining is cataphoric. It is the prediction of some of the information that a following clause will contain. It is common throughout the New Guinea highlands, though unreported elsewhere. Joy McCarthy's 'Clause chaining in Kanite' (1965) describes verb inflections that predict whether the subject of the clause that follows will be the same as the subject of the clause that contains the verb with that inflection. If the next clause is to have a different subject, the chaining systems of some languages predict what person and number the new subject is going to have, while others simply predict that there is going to be a change. Chaining systems may go with linkage systems, so that an event in a sequence of events may be chained forward to the next event and at the same time may be linked backward to the preceding event. As with linkage, breaking a chained sequence may have special significance (Marshall Lawrence ms).

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[1] Longacre (1968) uses the terms figure and ground for linkage relationships. The central element or figure in one sentence becomes the ground for the introduction of a new figure in the next in his terminology. I find this terminology, taken from Gestalt psychology, less than satisfactory because of the necessity of divesting it of the Gestalt principle that without the ground we can't perceive the figure. That is not the point; we are dealing only with a mechanism for linear cohesion between adjacent event tellings.

3. USE OF SURFACE CONSTRUCTIONS

It is useful to note down on a Thurman chart just where and for what kind of information particular grammatical constructions are used. Our grasp of grammar has changed sufficiently in the past decade that instead of simply saying that a language has, for example, thirty-two clause types, we can now ask legitimately what the various clause types are for, and by tracing their pattern of use within a discourse we can get an answer.

Most of the languages I have looked at so far regularly use some kind of active clause type to report events; that is, the instigator of the action is regularly the grammatical subject. Passive constructions may be used to report events, but they assert a special kind of relationship to them, discussed in Chapter 21.

There are two kinds of phenomena frequently called passive that should be kept distinct. The first is the kind found in English, in which the agent who instigates an action is expressed in a prepositional phrase and some other element of the action is the grammatical subject, as in _the ball was hit by the batter_. As Halliday (1967) points out, this construction gives two options. One treats the agent as new information by placing it at the end of the clause as the nucleus of an intonation contour without using a marked form of either the information center (Chapter 19) or the thematic organization (Chapter 21). The other option omits the agent: *the ball was hit*, which permits *hit* to be the new information in the information center and makes *ball* the theme; the agent either is irrelevant or is recoverable from the context. The second kind of passive, which I distinguish as the *nonagentive*,sounds like the second of the two English patterns but has no parallel in the first. In other words, it is incapable of stating who the Agent of the action is, and is often used to sidestep the question of who instigated something. Nonagentive passives are common in languages of the western hemisphere, and no unknown in the eastern. Of the Indo-European languages, Spanish illustrates nonagentive semantics in one use of the impersonal *se*: for example, *se me pasó una desgracia en el camino* 'an unfortunate thing happened to me on the road' in circumstances where English would say *I had an accident on the road*. Passives of both kinds may be used in explanations.

Confusion of the use of passives for reporting events with their use in explanations seems to be involved in the justly parodied bent of some writers in the physical sciences to try to sound objective by using the passive voice in all their writings, with the result that they really sound as though they were trying to evade the responsibility for their work: *The apparatus was mounted and the observation begun. The dials were read every hour. The process was interrupted briefly because an important connection was broken. After the results were tabulated, it was concluded that the Heatherington-Smedley hypothesis was capable of being modified as had been suggested by this investigator. The tabulation is given in Appendix B for verification by the reader.*

Identificational information tends to make heavy use of equatives as well as of nouns, which there is reason to believe (Bach 1968, Frantz 1970) may represent a surface form of embedded equative. Equative constructions are also the basis for thematic identifying forms of sentences (Chapter 11) like *what this country needs is a good five cent cigar* and its extraposed counterpart *it is a good five cent cigar that this country needs*.

Locative constructions appear frequently in connection with setting information: *It is chilly in the mountains in November*. *There is a valley there*, *however*, *where the frost always comes late*.

Grammatical embedding of sentences within sentences is commonly used for relatively short stretches of background information or for identification: *The tickets for which Sam had paid his week's salary were for the wrong night* contains an embedded *for which he had paid his week's salary* that is on the borderline between background and identification. The embedded clause may inform the hearer about the events that led up to Sam's having the tickets; on the other hand it may distinguish those tickets from some others. The distinction in this instance is paralleled by the well known grammatical distinction between nonrestrictive and restrictive relative clauses (Thompson 1971), though I am not sure the correspondence fits all cases.

Quotative constructions in connection with collateral information have already been mentioned. Some languages also use quotations regularly as a means of presenting background information, using a verb of thinking to introduce the quotation rather than a verb of saying: 'he took the money, thinking "she owes it to me"' is equivalent to he took the money because she owed it to him in English.

Specific grammatical elements in a language are seen to stand in a special relationship to discourse structure. McLeod (ms) demonstrates the difference in aspect systems in Xavánte of Brazil when the aspect refers to an event and when it refers to a nonevent. In Angaataha of New Guinea Roberta Huisman (ms) reports a difference between primary and secondary verbal inflections in event-oriented texts. The speaker uses primary verbs to single out events that are important to his story in contrast to those he puts in for detail or color using secondary inflection. Bacairí of Brazil (Wheatley ms) makes use of a distinction between focal and nonfocal pronouns in a kind of stage management system, telling the hearer who is prominent in the discourse at the moment and who is upstage. The focus and topic system of some Philippine languages (the term "voice" used by some authors obscures what the system is for; see Austin 1962) is similar in that sequences of related grammatical constructions are used to tell what a discourse or paragraph is about and to introduce characters (Helen Miller ms). This system has parallels in Nambiquara of Brazil, though the specific grammatical expressions used are not comparable on the surface (Menno Kroeker, Appendix A).

CHAPTER SEVEN

CONSTITUENCY IN DISCOURSE

Sentences and parts of sentences can be analyzed in terms of their constituent structure. So can entire discourses. Larger units of language are made up of smaller units in a particular arrangement; or looked at from a different angle, larger units can be partitioned into smaller ones according to a particular principle.

One step in the linguistic analysis of discourse is therefore a division of large units into their constituent parts, labeling the parts so as to reflect how they are related. This type of study has been carried farthest in the area of discourse by Longacre (1968) and his associates. It is a valuable phase of discourse study, even though it is subject to the criticisms Postal (1964) brought up against constituency grammars in general. One could say that constituency analysis makes use of a universal property of surface grammars, partitionability, which could be thought of equally well as a property of transformational systems that produce surface structures from deep structures. It proceeds by successive partitioning to catalog the kinds of elements and kinds of relationships among elements that a language makes use of in its discourse system. What these elements express, and what the relationships are good for, is a distinct aspect of discourse study that I would suggest can be investigated best when the cataloguing is done. Constituency analysis is not the end of linguistics, but rather a systematic way of doing the spade work.

1. PARTITIONING PRINCIPLES

Texts can be divided into sections in a number of ways, and the sections themselves can be further divided. The principles of partitioning involve more distinct relationships than the principles of partitioning sentences into their constituent parts. There is also no inherent ordering of the partitioning principles; for example, one text may be divided into two settings in which a single cast operates, while another may have a single setting within which a series of casts of characters play their parts.

The first kind of partition to look for in a narrative text is the one based on setting. Change of scene is usually marked explicitly, and almost always comes near the beginning of the stretch of text that is characterized by unity of setting. Even in the case of procedures and explanations, the place where the action is to be carried out or the region where the principle holds good may give a partitioning of the text.

Temporal setting, as has been mentioned, is different from spatial setting in that it is always changing. The trees and buildings of a spatial setting remain constant throughout the setting for all practical purposes; but each tick of the clock changes the temporal setting. Nevertheless, it makes sense to speak of a single temporal setting for a stretch of text whenever the actions in that stretch of text take place without mention being made of any discontinuities in the temporal line. If we talk, for example, of *the major battles of World War I*, we refer to a sequence of events in a temporal setting but fail to take any note of the times that passed between battles. If we were taking a closer look at that time interval, we would probably use the boundary periods between major battles as segmentation points for stretches of speech which indicate no discontinuity within themselves, but do use linguistic means to talk about discontinuity with the preceding and following stretches: _not long after the final action of that battle_ ...

Spatial setting is very much like stage scenery; it remains stable once the curtain is up until the curtain is brought down again, except by overt actions of the participants in rearranging it. When a text is divided into parts on the basis of spatial settings, each part is like a different scene of a play. A special kind of spatial setting is what Naomi Glock and I (1970) have labelled a _trajectory_, or a moving sequence of spatial settings through which a participant travels. A trajectory is like a temporal setting in that even though no two actions take place at the same location, the setting is considered a unit unless a discontinuity in it, a boundary between it and another setting, is mentioned. All the actions along a trajectory belong to the same segment of text.

Theme is a partitioning principle for some languages. This subject will be gone over in detail in Chapter 11; but in this context it is enough to say that as long as the speaker is talking about the same thing, he remains within a single segment of the text at some level of partitioning. When he changes the subject he passes from one element of the organization of the text to the next element.

Mundurukú paragraphing is tied tightly to thematic organization. I would interpret Sheffler's analysis (ms) as thematic: First comes a particle which says, 'I am going to change the theme of the discourse and talk about something else'. Then the new theme is introduced as either the grammatical object or the goal of the clause. From there on the theme can be referred to without explicit identification, even though other elements in the text have to be identified. Nambiquara (see Menno Kroeker's paper, Appendix 1 of this volume) has a hierarchy of thematic organization including at least a global theme for the entire discourse and local themes which cover sections of the discourse and thus define segments of the discourse.

Christensen's discussion of the place of topic sentences in English paragraphs (1966) suggests that change of theme may be the basis of at least some partitioning into paragraphs in English. Christensen's model is too simple for English in that he finds the theme stated only at the beginning of paragraphs; but this can be filled out by attention to Christensen's own examples of exceptions. The paragraphs he gives as topicless have a complex buildup to the topic sentence, which then appears later in the paragraph. Nevertheless, his recognition of a thematic basis for partitioning of texts seems essentially correct, and may not be in conflict with Becker's observation that changes of participant orientation are involved in paragraphing (1966), since participant orientation itself (Chapter 18) may be a complex form of thematization.

Uniformity of the cast of characters (Chapter 20) may be a basis for text division. Certainly in the Odyssey the division between the episode of the Lotus Eaters and the episode of the Cyclops involves not only a change in spatial setting, and so we sailed away from that island ..., but also a change in the characters with whom Odysseus and his crew were interacting. This is in contrast with divisions based on a new spatial setting that retains the old cast of characters, as is common in Xenophon's Anabasis, where the standard formula is (1:2) "From there he marched on for three days, twenty leagues to Celaenae, an inhabited city of Phrygia, great and prosperous. While there...' Just the opposite is the case in Shakespeare's 'A Midsummer Night's Dream" IV.i, where the setting remains the same but one set of characters leaves the stage, a completely different one enters, while a third set remains through most of the scene.

The point to remember about cast of characters is that a group may vary in membership and still be the same group for purposes of linguistic reference. In the example just mentioned, Odysseus lost a couple of crew members who remained among the Lotus Eaters, but he still sailed away with his crew. A candidate takes on the incumbent president, the news report has it; but in reality the candidate and his backers take on the incumbent president and his backers. Divisions in the text that are based on the cast do not reflect incidental changes in the membership of the groups that participate in the action, but only the identity of the groups as groups.

This principle of group identity may apply in different ways in higher and lower levels of segmentation. In a Cornell football broadcast, for example, the announcer may pass on the information coming in over the wire that The Oklahoma team defeated Kansas State by a score of 35 to 10. In giving the play by play account of the game he is witnessing, however, he will not talk about the Cornell team in quite the same way. Instead, he will segment his text at the points where Cornell either gains or loses control of the ball. At that point either the offensive or the defensive squad takes over, the personalities are different, the mode of play is different, and during that stretch of speech the announcer's choice of vocabulary to describe the action on the field is different, especially if he is a local announcer reporting on behalf of one of the teams. Later, however, in talking about the same game he will say *The Cornell team defeated Yale 13 to 7*, reporting that game as one of a set of games instead of as a sequence of plays, and treating the team as a unit rather than as two distinct groups.

Becker (1966) has suggested that English paragraphs are at least sometimes divided on the basis of what in Chapter 18 I describe as *participant orientation*. That is, there are stretches during which a single participant maintains a relatively higher level of activity in relation to the other participants defined in terms of a ranking of underlying role relationships. Each stretch has a uniform orientation to the actions in the paragraph. For Nomatsiguenga, however, Wise and Lowe (ms) find that paragraphing corresponds to orientation cycles. Each cycle begins with the dominant character in a story initiating an action, followed by a response in which the secondary character initiates an action. Each time the cycle returns to the dominant character as initiator, a new paragraph is recognized. Barnard and Longacre (in Longacre 1968) recognize a similar principle behind L-paragraphs. In Ayoré (Briggs ms) and Jibu (Bradley 1971) there are definite regularities of participant orientation, but for those languages participant orientation does not seem to contribute to partitioning of the text into paragraphs.

Christensen (1963a, 1963b, 1965) has made the grammatical relationships of coordination and subordination the basis for his prescriptive treatment of paragraphing.[1] He looks at the clauses in a sentence and the sentences in a paragraph as a kind of tree or outline structure in which subordinate points depend on superordinate points, and in which at any level of subordination there may be two or more points that are subordinate to the same point at a higher level and coordinate with each other. Paragraph breaks in his view are appropriate whenever one returns from a lower or less inclusive level to a higher or more inclusive level. Dik (1968) adds materially to the discussion of coordination and subordination, though he does not go into its relationship to paragraphing.

I have made a similar point (Grimes ms) in regard to the general model of relationships among linguistic elements: for many languages a tree structure or its more familiar counterpart, the outline, is a very good representation of the organization of information both within sentences and in groupings of sentences and further groupings of those groupings. Meyer (1971) finds that a tree or outline representation seems to have a psycholinguistic validity in that recall of high level or more inclusive nodes is superior to recall of low level nodes except when the low level nodes give details (numbers like 1776 or proper names) that have been learned with effort in other contexts. Fuller (1959) bases his system of textual exegesis on the assumption of a tree structure that involves coordination and subordination.[2]

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[1] Christensen's use of the term *generative* is a misnomer from the point of view of linguistics. He is not characterizing the set of paragraphs or sentences; he is telling the student how to produce highly valued paragraphs and sentences. Because his advice to the writer is in general good, one tends to feel lenient about his misuse of a jargon term which, after all, has tripped more than one professional linguist.

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[2] Fuller's success in expressing text relationships in tree form was one of the stimuli that turned my attention to the more general problem of discourse structure.

2. LEVELS OF ORGANIZATION

Longacre (1968) makes use of the notion of standard levels of organization within text that are consistently present in languages of the world: morpheme, stem, word, phrase, clause, sentence, paragraph, discourse. There are variations on the main pattern; for example in many languages of New Guinea there is no useful distinction between the sentence and the paragraph, in some of the Mayan languages of Middle America it is difficult and probably structurally unnecessary to tell a word from a phrase, and in some languages of Vietnam (Watson 1966) clauses and sentences are not sharply differentiated. Nevertheless, in most languages, and elsewhere in the hierarchies of even the languages in which there is some lack of distinctiveness, it is at least heuristically useful and typologically valid to expect considerable consistency from one language to another in terms of levels of organization.

My own position at the moment, as expressed in connection with outline structures (ms), is that there seem to be three general kinds of semantic units: roles or cases, which in a predicate grammar (Chapter 13) are a class of predicates that are characteristically dominated by and selected by the lexical predicates (for example, go selects an Agent, the one who goes, in its use as a verb of motion), lexical predicates that correspond more or less to the meanings of words, and rhetorical predicates that express the relationships that unite propositions built from lexical predicates and roles into rhetorical complexes, and that recursively unite rhetorical complexes. The minimal expression of roles and lexical predicates is in the clause, while the minimal expression of rhetorical predicates is in more than the clause, usually the sentence. Larger units are required for expressing more complex productions made within the rudimentary grammar that is implied here. Sentences, paragraphs, and the like are most conveniently thought of as packages of information that are wrapped up and labeled in a standardized form for the hearer's benefit, to help him keep track of where he is. The implications of this view are discussed in more detail in Chapters 24 and 25.

Whether Longacre's levels of organization have a universal basis or not, they do form a useful grid for the analysis of discourse. I will comment on them in order from least inclusive to most inclusive.

Longacre speaks of the clause as the unit whose function is to 'express predications'. This is not to say that no predications are expressed except in clauses, but rather that the clause is the minimal unit of this kind and the one that is most commonly used to express the kinds of relationships that I treat as lexical. It should also be borne in mind that some semantic configurations that could be expressed as clauses are expressed in embedded form as nouns or adverbs or relative clauses; from the semantic point of view, however, they are predications none the less.

Sentences are 'propositions which may concatenate, oppose, balance, or report predications' in Longacre's hierarchy. A one-clause sentence is thus more than the simple predication of its clause component; it is the reporting or the assertion of that predication. Longacre's article on the sentence as a statement calculus (1970) and its later development by Ballard, Conrad, and Longacre (1971) exemplify Longacre's position, which in general agrees with my own observation that certain rhetorical relations (conditions, for example) cannot be expressed within the compass of a clause in surface structure, but instead require at least a sentence to say.

Although Longacre and I both have little to say about levels of organization between the sentence and the paragraph, I have recognized in Huichol (1966) a period consisting of a string of related sentences that seemed to play a part in the hierarchical system.

Paragraphs in Longacre's model are 'units in developing discourse'. Of the principles discussed in Section 1 of this chapter for partitioning texts, I find that the unity of time or place, unity of participant orientation, and unity of subtree or suboutline structure frequently correspond to a recognizable surface configuration larger than the sentence that can conveniently be called a paragraph. Whether these units are the building blocks out of which discourse is put together directly, however, seems to me to depend on the complexity of the whole. The relationship of a paragraph to a novel is probably different from the relationship of a paragraph to an instruction sheet for a dishwasher, not only because of the difference in subject matter and style, but also because the novel is vastly more complex and requires many intermediate layers to be recognized, whereas the instruction sheet may divide immediately into paragraphs. In Longacre's model these intermediate layers are assumed to be embedded discourses (1968).

Certain groupings of paragraphs have been recognized in texts. In Ilianen Manobo, for example, Wrigglesworth (ms) finds an incident level and an episode level whose surface forms are not simply strings of paragraphs, but which have their own characteristics. These characteristics are expressed as constraints on the way settings may be referred to anaphorically, as formulas, and as other things: 'Episode settings always involve a change of participant orientation and scene from the previous incident in the story ... While the opening incident of an episode takes its temporal setting from the speech of the participant thematized in the episode setting, settings for subsequent incidents are defined by their motion away from or their return to the previous setting ... Incidents nearly always conclude with evaluative paragraphs'. Kayapó (Stout and Thomson 1971) has episodes in narrative. They consist of a transition paragraph which links the episode to the preceding one by repeating its base paragraph, followed by one or more base paragraphs that give the action, and optionally end in an explanatory paragraph that gives non-event information.

The planes of an overlay (19.3) are another kind of complexity that can be intermediate between the paragraph and the discourse. A line of argument, usually an enthymeme, may make up more than one paragraph of a nonsequential discourse, especially if some points of the argument are illustrated, say by a narrative. As mentioned earlier (Section 1) with regard to unity of cast, an episode may consist of a series of paragraphs in which the same characters take part, so that a new episode begins when a significant change of participants takes place. The term chapter is available in linguistic terminology for still larger intermediate levels of organization; there is probably no means of establishing a limit on how many intermediate levels of organization there can be between the paragraph and the discourse.

Discourse itself has to be taken as the ultimate level of organization, that level beyond which members of the culture no longer recognize the kind of closure that Pike speaks of in defining the behavioreme. Even though this notion of cultural recognizability is useful enough for me to take it as a primitive, undefined and undefinable notion, it leaves open some questions that I cannot answer: is an unstructured conversation, as at a cocktail party, one discourse or many? (Weizenbaum 1967) Is there not a form of verbal rambling that has a paragraph structure but not a discourse structure? Do marginal forms of speech such as glossolalia (Samarin 1971) have a discourse structure, or only a phonological structure? Can we speak of different discourse structures when, for example, a radio announcer is speaking into a microphone to his audience, stops for a commercial, talks to the engineer, goes back to talking to his audience, and perhaps even asks the engineer for coffee by turning off the microphone between sentences and calling to the engineer? Fortunately we do not have to suspend all study of discourse until questions like these are resolved, because there are enough discourses that are well behaved to give us plenty of insight into language just in describing them.

CHAPTER EIGHT

SEMANTIC ROLE STRUCTURE

Up to now most of what I have had to say has been heuristically rather than theoretically inclined. The different kinds of information that are found in discourse, as well as the different sizes and shapes of structures that discourses can be segmented into, now need to be discussed in contexts in which it can be seen more clearly why they contribute what they do to discourse. The reason for bringing them up together in the preceding chapters was partly to give the reader an idea of the kinds of things that can be included in discourse studies, and partly to suggest ways he himself might approach the linguistic analysis of texts.

1. CONTENT, COHESION, AND STAGING

Turning now to models of discourse phenomena that can give insight into the relationships that underlie discourse, there appear to be three distinct sets of relationships on which we need to focus (Halliday 1967b). The first I will call *content* organization. It has also been referred to as cognitive or referential structure, and more loosely has been called semantic organization or meaningful structure. It embraces *lexical* and *rhetorical* relationships; that is, both the way in which things that are perceived are said to relate to each other in the ordinary sense of dictionary meanings (Chapters 8 to 11), and the way in which these propositions about relations group together into larger complexes (Chapter 14). The content system of language thus has a hierarchical side to it that to a certain extent is reflected by the kind of surface hierarchical groupings discussed in Chapter 7. It probably includes what Fillmore and Halliday call modality, though this may be a separate system. It also has a side that cannot be matched to the hierarchical side without bringing into linguistic theory something that many linguists would rather keep out: reference.

A second set of relationships is fundamentally independent of the cognitive set. These are cohesion relationships, which relate what is being said at the moment to what has already been said (Chapter 19). Cohesion is cumulative and linear rather than hierarchical. It has to do with the means of introducing new information and of keeping track of old information, rather than with what the content of the new or old information actually is. It is also tied up with the speaker's estimate of the rate at which the hearer can process new information.

The third kind of relationships that operate in discourse are staging relationships. They are concerned with expressing the speaker's perspective on what is being said. Normally they make one part of a stretch of discourse the theme or topic and relate everything else to it. There are thematic structures that set the stage for entire discourses, thematic structures that stage only clauses, and thematic structures at intermediate levels (Chapter 21).

In the simplest instance staging, cohesion, and content support each other; the theme for staging is selected from information that has already been introduced, and this is related to the rest cognitively as well as thematically. Frequently enough, however, at least one of the three ways of organizing information parts company with the rest; this is why they have to be distinguished.

Possibly there is a fourth kind of organization in discourse, a modal component that relates the discourse to the speaker (Chapter 15). If, however, the notion of performatives is capable of being fitted within the content hierarchy, then modal information might be taken as one kind of content that is introduced via the performative. As far as this book is concerned I treat modal information as part of the content system.

Now let us consider that part of the content structure that I have just labeled lexical and proceed to give it a more definite shape. The concepts discussed in this chapter and the next few are a necessary background for developing a theory of discourse, even though they do not contribute directly to discourse itself. Accordingly, we will come back to discourse as such in Chapter 14 on rhetorical content structure, and again from Chapter 16 on. Meanwhile let us build up the framework for talking about discourse.

First, it is desirable to make a distinction between those things in language over which the speaker can exercise choice and those over which no choice is available to him. The first reflect meaning; as many linguists have pointed out, meaning is possible only when the speaker could choose to say something else instead. The second are the more mechanical components of language, the implementation process by which the results of the speaker's choices are expressed in a conventional form that permits communication with someone else. For example, a speaker of English can choose whether to talk about cats or about dogs; and in

connection with that choice he can decide whether to talk about one of them or about many. If he decides to talk about cats, and many of them, however, he is then restricted as to where he can put the sound that lets the hearer know that he has selected the 'many' option--the plural marker. It must come after the noun cat, not before it, and its phonetic form is constrained by the word it goes with--
-s after cat and similar words, -z after dog and similar words, and so on by well known rules. The speaker has no choice over the position or the voicing; they are part of the implementation.

This distinction between choice and implementation is similar to the distinction between content and expression made by Hjelmslev (1953) and later adopted by Chafe (1970); it also corresponds to Šaumjan's two levels of linguistic structure (1965). One way of defining the difference between deep and surface structures is also compatible with this: that of linguists like Langendoen (1969) and Lakoff (1965) whose representations of semantic structures are capable of being well defined, correspond systematically to surface structures, and are central to their point of view.[1] As Max Black (1968) has pointed out, this division of language into elements involving meaningful choice and the means of expressing the results of that choice is one question; whether those choices can in fact ever be made without reference to the possibilities of implementation that exist for each choice is a separate question.

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[1] The older deep-surface distinction of Hockett (1958) and Chomsky (1965) was an attempt to move linguistics in the right direction; but it went only part of the way. Chomsky's later theory (in Steinberg and Jakobovits 1971) in principle accounts for the same semantic structures and relates them to surface structures in the same way as a theory like Langendoen's; but it does so in what to me is a much less insightful and revealing way by making semantics an interpretation of the syntactic structures that are associated with the language generated by his grammar.

I adopt the position here that the choices a speaker has available within the content system can be expressed by means of *propositional* structures (Chapter 13). Each proposition contains a *predicate*, which expresses a semantic relation among *arguments*, which may themselves be propositions.[2] Propositions, predicates, and arguments will occupy us throughout most of this chapter and the next five. The implementation that relates propositional structures to the corresponding surface forms is expressed as a set of *transformations*.

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[2] The term *predicate* is used here in its logical sense: 'designations for the properties and relations predicated of ... individuals' (Carnap 1958.4). This should not be confused with the use of the term for the linguistic surface element called *predicate* that involves a verb and its adjuncts (Pike 1967.250) in their relation to a *subject*. Complexes of propositions, in which some propositions are arguments of others, have the form of a tree generated by a recursive context free grammar whose properties are discussed in Chapter 13. Although I have a suspicion that there may be better ways than this to represent semantic relationships, I do not have any of them worked out yet; and tree structures are adequate for enough of what needs to be said about the organization of content in the context of this book on discourse that I do not find them a bad or misleading representation.

Much of the content of discourse is expressable in terms of predicates whose arguments are related to them in a small number of conventional ways called role or case relationships. The predicates whose arguments involve role specifications directly are the ones I call lexical; the one that underlies English eat is an example. Those whose arguments are related in other ways I call rhetorical; the one that underlies English because is an example. There may be predicates that have some arguments that are limited by role specifications and some arguments that do not; if so, they constitute an intermediate class. The rest of this chapter is concerned with role relationships and the part they play in lexical structure.

2. ROLE RELATIONSHIPS

The idea that a certain few relationships operate in the semantics of a great many words is not new. C. C. Fries devoted two chapters of The structure of English (1952.173-239) to structural meanings. In his discussion of subjects and objects he lists five meanings which the subject of a sentence can convey: (1) performer, (2) that which is identified, (3) that which is described, (4) that which undergoes the action, and (5) that to or for which the action is performed. These meanings correspond respectively to the role categories of Agent, Essive, Patient of a state, Patient of a process, and Benefactive. The role names are, however, more than just a shorthand for the kinds of subjects that Fries labeled. They correspond to similar relationships manifested in areas of surface grammar that have nothing to do with subjects and objects.

Pike (1954.131,150) recognizes, following Fries, that the notion of grammatical subject is a mixed bag. In his second edition (1967.196) he speaks of a 'class of various different subject tagmemes'.

Pike also speaks (1967.246 note 14) of an analysis of discourse in which the dramatis personae are traced through a plot, and of the independence of the dramatis personae from grammatical slots such as subject and object. He finds that 'from the viewpoint of the tale as a whole ... the dramatis personae remain invariant'. The idea is developed further in an article on matrices composed of tagmemes (Pike 1964). Longacre uses the notion of dramatis personae metaphorically along with props, scenery, local color, and plot to characterize predication clauses (1964. 35). The list of tagmas that are potentially suspect because of similarities in slot meaning (1964.63) is related to the surface manifestations of role relationships, but is not concerned with the relationships themselves. Barnard and Longacre (in Longacre 1968.194-223) identify participant roles in relation to the discourse as a whole, similar to Pike's invariant dramatis personae.

The notion of role relationships as part of the meaning of words has been most successfully exploited in tagmemics by Harland Kerr (1965) and by Forster and Barnard (1968). In dissociating role relationships from surface tagmemes, then stating explicitly the mappings that relate roles to tagmemes, Barnard and Forster paved the way for an important advance in the understanding of semantic relationships in verb systems of languages of the Philippines (Hettick ms; see also Ashley ms, Draper ms, L. Hohulin ms, J. Miller ms, Rhea ms, and West ms).

As far as American linguistics is concerned, the landmark in the study of role relationships is Charles

Fillmore's paper 'The case for case' (1968). Fillmore not only summed up a lot of what had been written on the subject, but pointed the way toward an extension of role or case grammar to cover more than just verb-noun relationships. Possibly more important still, he did it in a way that caught the attention of linguists of a number of theoretical persuasions. Other writings of Fillmore's help round out the picture. Still other insights are given by Langendoen's applications of case grammar (1969, 1970), and by its adoption as the frame of reference for the UCLA synopsis of work done up to that time on English transformational grammar (1968). Frantz's grammar of Blackfoot (1970) illustrates another possible formalization of role grammar, outstanding in that he makes explicit the required transformational apparatus that others tend to leave implicit.

Ideas similar to Fillmore's have appeared in other works. Lyons, for example (1966, 1968) proposes a notional theory of parts of speech which, taken together with his view of grammatical functions, results in a picture of grammar that does not differ greatly from Fillmore's. Halliday (1967a) discusses the same kind of relationships under the label of 'transitivity'. Chafe (1970a, 1970b) centers his attention on the verb rather than on verb-noun relations as such, but the effect he achieves is substantially the same. Weinreich's semantics, also verb-centered (1966a, 1966b), fits the same paradigm. His transfer features are capable of being extended into a Fillmore grammar, as Hall's work on Subanon demonstrates (1969).

Organizing a good deal of the information about a language in terms of role types gives insight into an intriguingly broad range of phenomena. I take the position that role or case grammar is one of the important contributions of current grammatical theory. Even though it does not account for everything in language, yet it sheds light on enough that it should now be one of the standard areas of study in any language. Furthermore, role relationships shed light on discourse phenomena, as we shall see in Chapter 18.

So far each linguist who has written on roles has come up with a different list of what the standard role relationships are. The canonical list I give here differs slightly from every other that I know of. What is significant, however, is not that linguists disagree on what roles there are; that is, on the exact specification of the small set of conventional relationships, quite likely a property of all languages, in terms of which a large portion of semantic structure is organized. The significant thing is that as studies of the properties of role systems continue, there seems to be a convergence in the findings of different scholars. Given the application of the idea to more and more languages, and in greater and greater depth in some languages, there seems to be an empirical shaking down of the idea of roles or cases to within the limits that normally apply to two scholars ever agreeing on anything.

Another aspect of role systems that contributes to an effect of imprecision is the likelihood that some behave differently from others. As we shall see, there is reason to believe that at the deeper levels of semantics, Instrument and Benefactive are themselves lexical predicates superordinate at an early stage in a semantic derivation to the lexical base element with which they are associated. Later they are transformed in such a way that from there on they behave like the other roles. Furthermore, some role relationships may themselves be semantically more similar than others. Frantz (1970.161), for example, recognizes that for certain purposes Source, Noninstigative Cause, and Instrument act indistinguishably; at that point he treats them as a more comprehensive role labelled Means. In the same way, the Experiencer and Goal roles were lumped together as Dative in Fillmore's 1968 paper, but later split; yet there are times when it is convenient to have an undifferentiated Dative role that includes both.

3. A LIST OF SEMANTIC ROLES

In giving my own list of roles I adopt Fillmore's convention of capitalizing the first letter of a role name. I also introduce one-letter abbreviations of the role names, not so much to clutter up the text with them as to give the reader a notation for working on data. My purpose is not to define role relationships exhaustively, but only to introduce them in a way that I can make use of in later chapters, since the part role relationships play beyond the sentence is not extensive.

AGENT (A) relates the instigator of an action to the action. The Agent of an action is the one who performs it. Typically this implies animateness. The implication is strong enough that animateness is carried over into figures of speech. Along with _the boy (A) hit the ball_, where everyone agrees that the boy did something, we have personifications like _Fortune (A) smiled on her_ and reifications like _linguistic theory (A) prohibits the use of Feature X with Feature Y_ (which, as any insider knows, invariably means 'As I look at things this morning, I fail to see why X and Y should go together').

Where causatives are involved there is some question about whether a separate role, Causative Agent, should be added to the list. For a number of Philippine languages a distinction has been made, for example, between Causer and Actor, to cover examples like Sally (Causer) had John (Actor) set the table, where John set the table but Sally instigated it. If we take Frantz's principle (1970) of proposition consolidation into account, however, this distinction becomes superfluous. Causatives are analyzed semantically into a predicate on the order of *cause* with two arguments: an Agent of its own, corresponding to *Sally* in the example, and a Patient which is itself a lexical proposition, corresponding to *John set the table* in the example. This embedded proposition has its own Agent, *John*. Under certain conditions (discussed in 24.2) a transformation known as *proposition consolidation* applies, giving a pseudo-proposition in which *Sally* is now the Agent as far as later transformations are concerned; for example, *Sally* is the subject of the output sentence. Moreover, in the subsequent application of transformations, *John* is no longer treated as Agent in his own right, but more as a Goal element would be treated. Proposition consolidation (11.2) results in the causative pseudo-proposition having some characteristics that also underly sentences like *Sally (Agent) handed John (Goal) the biscuits (Patient)* as well as characteristics of *John set the table*.

An equally strong reason for not making the agent of a causative into a separate role is that it leads to arbitrariness. In *Mother had Sally have John set the table*, Mother instigates the action and John is the actual Agent who performs; but a third role would have to be set up for Sally in this case. Since there is no principle that allows us to limit the depth of embedding of causatives, neither is there a limit on the number of Causer roles that would have to be recognized as distinct; yet the semantic relationship of each role to its causative element would be identical.[3] It is therefore preferable to recognize that the apparent two-sidedness of the role structure of Sally in the example (the 'double function' Pike attributes to such elements in 1967.574) is the result of proposition consolidation. The semantic function of Agents embedded within agentives is blurred as a consequence of getting them arranged into linear form for transmission by speech.

PATIENT (P) tells who or what is affected by an action. The patient may be changed or moved, depending upon the meaning of the predicate. This close tie between the Patient role and the meaning of the predicate results in a nondistinctive character for the Patient role itself; it could almost be thought of as that role to which an element is assigned when there is no good reason for assigning it to some other role. The absence of a distinguishing trait of its own, it must be remembered, is neither a deficiency of the role nor a weak point in the scheme of role analysis; it is an instance of the well recognized property of linguistic systems that one member of nearly any set of elements represents the choice that is made in the absence of a good reason for choosing any other member. The unmarked member of a set is thus a default element that does not need to be defined positively; it is the neutral term against which the other marked terms are set off. (Lyons 1968.79 and Chomsky and Halle 1968.402-435 discuss the whole topic of markedness, which will be raised again in Chapters 19 and 21.) In fact, some linguists have preferred to name the Patient role Neutral as a reminder of its unmarked character.[4]

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[3] English has a variety of lexical predicates with causative semantics: cause, have, make, and the like. In languages like Huichol where explicit causative verb stems are less frequent than morphological markers of the causative relation, it is correspondingly less tempting to sidestep the question of multiple layers of causative embedding by focusing on the things that distinguish, say, cause from make and make from have, when the point at issue is the extent to which they behave identically rather than the obvious fact that they do not mean quite the same thing.

Even though the meaning of the Patient depends upon the predicate with which it is associated, there are characteristic areas of meaning that render the role easy to identify. The thing that undergoes some process is the Patient, whether it undergoes a shift in position as in the snowflake (P) fell, the foundation (P) settled, and the shaft (P) turned, or whether it undergoes a change in state as in the snowflake (P) melted, the foundation (P) cracked, and *the shaft (P) vibrated*. Processes end, leaving the things that undergo them in some state or other, so that there is a logical affinity between some processes and some states. Semantically anything that is in a particular state is also a Patient. In English, though by no means in all languages, states have to be expressed in a special grammatical form involving *be*: *the snowflake (P) is white*, *the foundation (P) is cracked* (here there is a morphological affinity between the expression of the process, *crack*, and the expression of the resulting state, *cracked*), *the shaft (P) is half an inch in diameter*, and even *what you are asking for (P) is impossible*.

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[4] Still others use the term Objective to refer to the Patient. In working out relations between role systems and surface grammar categories like subject and object I find enough slippage introduced by the term Objective that I have stuck with Patient, though I realize that it has medical overtones that can give rise to as many bad puns as 'foot' does in phonology. The term Affected has also been used. In the literature of role systems, however, there seems to be adequate agreement that the Patient/Objective/Neutral/Affected role needs to be distinguished from all other roles, call it what you will.

Animateness is incidental to the Patient role. It is built into the Agent role; but it is either irrelevant or tied to the predicate in the Patient role. For example, along with *the snowflake (P) fell* we can have *the skier (P) fell*, both of which fit the Patient diagnostic *something happened to X*.[5] For *the child (P) got sick*, however, animateness of the patient is required by the meaning of the predicate. *The snowflake got sick* makes sense only in a fairy tale in which snowflakes are acting animately.

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[5] The second example also fits the Agent diagnostic *X did something*, but with a different meaning. As Patient of *fall* (and here the medical metaphor obtrudes) we assert that an accident took place. As Agent we assert that the skier took evasive action of some sort. The sentence *the skier fell* is thus ambiguous by itself, in a way that corresponds exactly to which role structure it is taken to have, so that no further discriminator than the roles is needed for the two areas of meaning.

EXPERIENCER (X) is the role appropriate for perception and psychological involvement. In English *think* and *hear* both have usages that are clearly nonagentive in contrast with agentive counterparts: *I(X) think it's going to rain*, *don't you (X) hear the band playing*? The agentive counterparts also include the experiential component: *Let me (AX) think it over*, *when will you (AX) listen to my report*? The Experiencer is inherently animate just like the Agent. Its compatibility with agentively oriented modes like the imperative is tenuous enough that one wonders about commands like *know algebra* as over against the obvious agentive *learn algebra*.[6]

INSTRUMENT (I) represents something that is used inanimately to perform an action, as in *he cleared the yard with a rake*. It stands in a causal relation to the action. Just as the Agent and Experiencer roles attribute animateness to anything in those relationships, Instrument attributes

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[6] The assertion that is sometimes made that imperatives and Experiencers do not mix seems to need qualifying rather frequently. *Know this poem by Thursday* and *know thyself* are quite normal, though one recognizes that their meaning is agentive. *Learn thyself* is out because the Patient is personal. *Know that tomorrow is Friday* and *learn that tomorrow is Friday* both fall flat, though *I know that tomorrow is Friday* is fine as an experiential and *I learned that the next day was Friday* gives no problems even though it may be either agentive or nonagentive. Nevertheless, although poorly understood verbs like these are open to argument on specific instances, it seems clear that they involve a role that is neither Agent nor Patient.

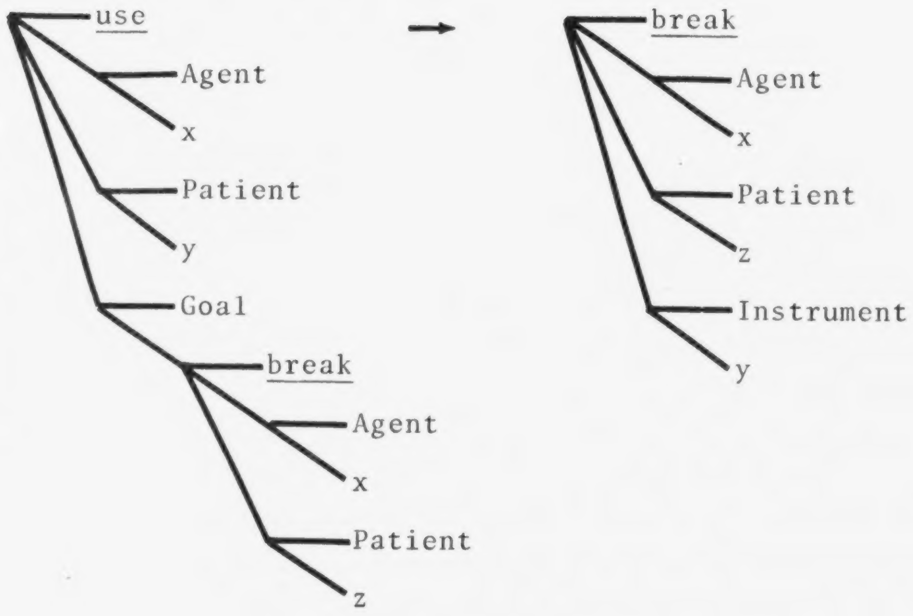
use
Agent
x
Patient
y
Goal
break
Agent
x
Patient
z
break
Agent
x
Patient
z
Instrument
y

FIGURE 8.1. Derivation of the structure underlying 'X broke z with y'.

inanimateness, so that if a person, for example, is used as Instrument, that person's body as a passive object is meant rather than his active collaboration: *Superman broke the window with the gangster* means that he heaved the gangster's body through the window. In some languages the Instrument role implies that the Instrument is in motion (Hettick ms); English, however, permits Instruments that involve no motion like *he convinced the jury with a syllogism*.

As was mentioned earlier, Instrument may not be a role at the deeper levels of semantics, but a two-place predicate in its own right, one that eventually becomes consolidated with the predicate that it dominates in such a way as to give the effect of being a role later in the process of postsemantic shaping. Figure 8.1 illustrates this concept. Note that other roles like Agent and Patient are presented in the figure as one-place predicates that are dominated by the predicate that carries the main lexical meaning, which we will call the *base* predicate of the complex. Instrument, on the other hand, has the following characteristics: (1) it dominates the base predicate, which stands to it in a Goal relationship, (2) it has its own Patient, which is the element that acts as Instrument after consolidation, and (3) it has its own Agent, which must be coreferential (Chapter 12) with the Agent of the base predicate.

There are cases where consolidation does not take place, so that an element that is potentially an Instrument is treated instead as superordinate to the base predicate throughout its mapping into surface structure. Constructions like these are what force us to think in terms of structures like the left hand side of Figure 8.1 in the first place. They leave us, however, with the job of accounting for why

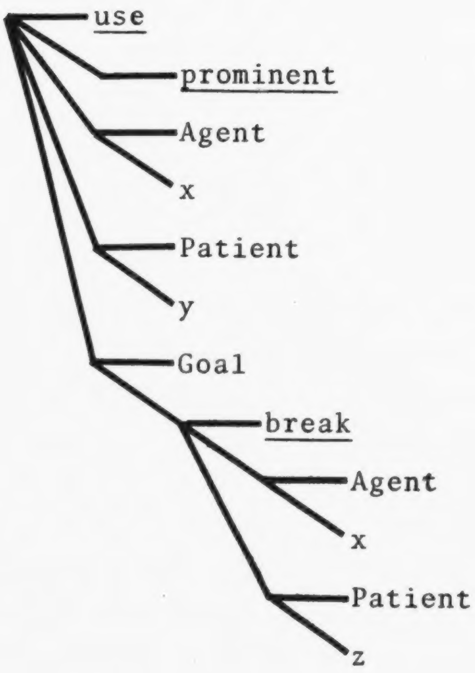
use
prominent
Agent
x
Patient
y
Goal
break
Agent
x
Patient
z

FIGURE 8.2. Derivation of the structure underlying 'X used y to break z', with consolidation blocked.

the transformation used in 5.1 does not apply in some cases, so that instead of getting consolidation to x broke z with y we get the unconsolidated form x used y to break z.

Although at one time it was considered adequate to label the transformation of proposition consolidation as optional, there seems to be more to consolidation than that. In our current concept, transformations are part of the machinery of expression and hence cannot by definition contribute anything to meaning. Yet there is a difference in meaning between x broke z with y and x used y to break z: a difference either in the prominence the speaker places on y or in the deliberateness with which x uses y. I have diagrammed the former possibility in Figure 8.2 by adding a predicate prominent to use. If this is a valid way to characterize what is different about the meanings of the two sentences,[7] then the presence of the element prominent can be taken to block the consolidation transformation.

Looked at in another way, an element like prominent as used here appears to be equivalent to choosing a marked member of a set of similar predicates, say, use actively as opposed to a colorless use. The unmarked use allows consolidation and gives an Instrumental role, while the marked use actively blocks consolidation and yields the surface verb

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[7] Prominent might attach instead to the predicate Patient that is associated with y. In either case, its effect is to inhibit consolidation. Note that it is a predicate of no arguments (13.1). I suspect that at the deepest level it comes from the staging (thematic) system and is transferred to appear as part of the content.

use. If this is the case, consolidation of the Instrument is parallel to consolidation of the causative. *He caused her to die* involves a marked causative (or possibly a combination of prominent with the causative), while *he killed her* may be consolidated from unmarked *cause* and *die*. (The other possibility is that *kill* is simply the agentive form of *die*.)

GOAL (G) tells where an action is headed or where it ends up, depending on the action. In *the pusher sold the junkie some heroin*, the heroin is Patient; it gets transferred. The junkie is Goal; the Patient ends up with him. In *the junkie bought some heroin from the pusher* the junkie is still Goal, but he is simultaneously Agent, with different grammatical consequences. In *we went to Wyoming* the action does not involve motion of a Patient, but does involve motion of the Agent, with Wyoming as the Goal.[8]

In English Goal does not seem to be the counterpart of what have been traditionally called purpose clauses. The purpose relationship has to be classified as rhetorical (Chapter 6) because it can coexist with Goal, as in

Ride a cock horse to Banbury Cross,
To see a fine lady upon a white horse.

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[8] The term *Goal* is used in a simpleminded fashion as a role label. It should not be confused with the use of the term by Bloomfield (1933) and others to mean 'grammatical object', often in the explicit sense of object as Patient. I take it that this usage reflected their dissatisfaction with traditional labels of surface grammar at a time before much progress had been made in separating out surface categories from the underlying semantic relationships they express.

Banbury Cross is the Goal, and *to see* ... stands in a still different relationship to *ride*. Omie (John Austing ms) has a role relationship called *Telic* that is distinct from Goal but that can still be expressed within the compass of a single clause, which is not the case with the English purpose clause. (English sentences like *he called to his wife for coffee* may make it necessary to consider a distinct Telic role as well.

As with Patient, the animateness or inanimateness of a Goal element is beside the point. Nevertheless, the surface expression of a Goal may differ depending on whether it is animate or not: with verbs of motion, compare French *à* in *allons à l'opéra* 'let's go to the opera' with *chez* in *allons chez George* 'let's go to George's'.

Early experiences in analyzing role relationships suggest that there may be times when it sounds forced to have to distinguish Goal from Experiencer. In *they showed us the slides of their trip*, for example, to categorize *us* as either Goal or Experiencer seems slightly arbitrary. This may be only because the semantic relationships are not yet thoroughly plotted out; but it could also be because they are not fully differentiated in this context. Fillmore's original Dative may have a place here to label the undifferentiated semantic relationship, while the more differentiated forms are used elsewhere.

SOURCE (S) is the reverse of Goal; it tells where something that moves starts its motion from. To go back to the earlier examples, in *the pusher sold the junkie some heroin* the pusher is not only Agent but also the Source from which the Patient moves away. In *the junkie bought* *some heroin from the pusher* the pusher is Source but not Agent. In *we left Georgia* it is the Agent, not the Patient, that moves, and the Source region at which the motion begins is Georgia. As with the Goal, animateness of the Source is incidental.

Mamanwa of the Philippines (J. Miller ms) has two kinds of predicates that combine Agent and Source. In one, the Patient starts out where the Agent is, but separates from the Agent in the course of the action, as in *ambaligzà hao ka makaen kan Mariya* 'I (AS) will sell the food (P) to Mary (G)'. The other kind not only has the Patient begin the action where the Agent is; the action by its nature involves the Agent moving with the patient, as in *iolì nao ining baskit doro kan Robirto* 'I (AS) will return this basket (P) there to Robert (G)'. The range of possible clause forms that express these predicates of accompaniment is distinct from the forms for Agent-Source predicates that assert separation.

NONINSTIGATIVE CAUSE (C) is Frantz's term for a role relationship that is similar to Source and Instrument but must be kept distinct from both. It asserts a causal relation but denies both animateness and intent, and so is not coupled with Agent as is Instrument. In both *the girl died of malaria* and *malaria killed the girl*, malaria is the Noninstigative cause; there is no Agent who is using malaria with deadly intent, nor is malaria itself being personified. The thematic possibilities of Noninstigative cause are different from those of Agent; for example, the agentive *Fu Manchu killed the girl* does not have a matching **the girl died of Fu Manchu*. (That sentence, however, is starred as impossible only in the agentive sense; it is acceptable in the sense of *I'm sick of Dick*, where *Dick* is Nonagentive cause but not Agent.)

Again, *the river carried away my hat* is ambiguous; personified, the river could be Agent, or as inanimate, Noninstigative cause. *My hat got carried away on the river* is not agentive, because the preposition is wrong for such a reading but possible for Noninstigative cause.

I had once hoped to be able to lump Noninstigative cause together with Source into a single role; but English forms like *the wind brought her the small of flowers from the garden* compared with *the smell of flowers came to her from the garden on the wind* makes it necessary to keep them separate. There may be instances, however, where a less differentiated Source-Cause role is all that is required. Frantz notes a lack of differentiation between Noninstigative cause and Instrument in certain instances in Blackfoot, which he labels Means.

RANGE (R) is the term I have chosen, following Halliday (1967a), for the relationship that others have labeled Locative, Locus, or Place, since those terms are easily confused with the notion of setting (Chapter 4). Range refers to the area or field in which an action is carried out. The most characteristic mark that distinguishes Range from Patient is that while the Patient typically is changed in form or position, Range is not affected in any parallel way. Range is, however, essential to the meaning of the predicate to which it is an adjunct; it cannot be separated off as can a clause that establishes a setting.

For example, Halliday (1967a) points out that *the street* in *they crossed the street* stands in a different relation to the action than it does in *they paved the street*, where something happens to the street. This is shown also by the readiness with which *pave* accepts the passive: *the* *street was paved by them*. *Cross* is awkward in the passive, unless it is taken in another sense that requires a Patient, namely 'paint a cross on something', in which case *the street was crossed by them* is acceptable.

Even though it is difficult at times to know whether one is dealing with Range or Patient, there is enough evidence that they must be kept separate in some situations to require Range to be recognized as a separate case. In a number of languages of the Philippines the distinction is essential for one class of verbs in which Range and Patient are mutually identifying. Ashley (ms) finds a category of verbs in Tausug called **field of action** verbs in which the Range designates either the field where the action takes place or the field of which the Patient is a member or component. The Patient is not mentioned explicitly, but is some element that is chosen from the field identified by the Range. The resultant meaning is partitive: *drink I water (R)* 'I will drink some of the water'. The Patient counterpart is also possible, but has a different meaning in which the Patient is treated as a whole, not as part of a Range: *drink I water (P)* 'I will drink the water up' implies total rather than partial action.[9]

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[9] Unlike English, there is an overt difference in the surface forms of the two Tausug sentences given as examples. Range in a field of action verb maps to a surface grammatical category known as **referent** that is signalled under certain conditions by a special **referent focus** inflection in the verb coupled with a phrase proclitic in the corresponding noun phrase. Patient, on the other hand, maps to the grammatical object category, signalled by a verbal inflection of **object focus** that distinguishes it from referent.

Range is the only role associated with a class of predicates that take the form of *meteorological verbs* in a number of languages. English, for example, has *Ithaca (R) is cold*. This form is not parallel to *ice (P) is cold*, since the former has as a paraphrase *it is cold in Ithaca* that is not matched by the latter.

There has been some discussion about whether a Temporal role should be recognized, similar to Range but time oriented. The strongest evidence I have seen for it is in meteorological predicates. Although forms like *last week was rainy* / *it was rainy last week* look as though they came from an underlying Range, other sets like *Brisbane is sizzling in January* / *January is sizzling in Brisbane* / *it is sizzling in January in Brisbane* argue for the recognition of a TEMPORAL (T) role as well.

BENEFACTIVE (B), also called APPLICATIVE, identifies someone or something on whom an action has a secondary effect. In many languages the manifestation of the Benefactive relationship is similar to that of the Goal relationship; semantically, Benefactive could even be thought of as a secondary goal. The idea of the Benefactive includes more than the etymology of the word implies, because it deals with ill effects as well as good ones. In Saramaccan, a creole language of Surinam (Grimes and Glock 1970), we find sentences like *hẹ́n fufúu-man kó fufúu da-ẹẹn suní fú-ẹn* (then steal-man come steal give-him thing for-him) 'then a thief came and stole his things from him'. The Benefactive is regularly expressed in Saramaccan, as it is in a number of languages of West Africa that have similar structures (Pike 1966), by a verb meaning 'give' plus its object, used as the last verb phrase in a verb phrase string. This holds when an action harms a person as well as when it benefits him.

Like the Instrument, Benefactive may be a separate predicate that becomes consolidated with the base predicate to which it is attached. If so, I would take it to have three arguments: an Agent, which must be coreferential with the Agent of the base predicate, an Experiencer or Goal, the one affected by the action of the base predicate, and a Patient, which is the proposition that contains the base predicate itself.

FACTITIVE (F) is the relation of an action to its result. The term should not be confused with 'factive', used by the Kiparskys to express a restriction on certain predicates to the effect that the propositions they dominate assert a fact (as in *Susie realized it was Monday*, which could be true on a Tuesday. *Realize* is a factive verb, *believe* is not.). Factitive gives the outcome: *the elephant (A) trampled the lion (P) to a pulp (F)*, *the glass (P) shattered into a thousand pieces* (F). Chafe (1970b.156 uses 'complement' for this relation.

It is possible that expressions of extent may be Factitive: *we swam five hundred yards*, *cut the plank to six feet*, *keep the question period under half an hour*. Where no process is involved, however, one could question whether extent is Factitive. It could plausibly be Goal or Range: *the plank is seven feet long*, *the question period is half an hour*. Extent, like Temporal, may have to be considered a separate role.

ESSIVE (E) is the role used for identification. It bestows a nominal status on the proposition to which it belongs, allowing it to be referenced as a quantifiable entity. In English it is linked with words like *have* and *be* (Langendoen 1970.102). Essive may be the only case associated with a predicate, as for example with *paper* in *the paper is torn* but not in *let's paper the bedroom*, which has its own Agent and Patient rather than as Essive. The presence of an Essive triggers the use of nominal rather than verbal patterns in surface grammar, even though other case forms are present: *our papering of the bedroom will have to be postponed another week*. The Essive lends itself to use in establishing identification.

Combinations of roles are possible. In them a single proposition expresses simultaneously more than one role relationship. We have already seen how Agent, for example, combines with Goal in *buy* and with Source in *sell*; *we bought bananas* asserts that *we* did something as Agent, and at the same time tells where the bananas ended up, whereas *we sold the picture* also asserts that we did something as Agent, but adds that the Patient *picture* was in our possession when the transaction began and was transferred out of our possession. *We* is Source in this case rather than Goal. *Receive* and *send* combine Goal and Source respectively with Agent in the same way, as do *get* and *put* also.

Range and Patient may also combine. We can say, for example, *Ezra Cornell lived in this house* or *this house was lived in by Ezra Cornell*. The lack of a parallel passive for *Ezra Cornell lived in this state* suggests that *state* is a Range element only, while *house* is Patient as well as Range, as though something had happened to the house but not to the state as a result of Ezra's residence.

As mentioned under Range, a number of languages of the Philippines have a partitive form like 'he brought rice from the field' that implies that some rice remains behind in the field. The partitive contrasts with a total action like 'he harvested the rice', which implies that he brought all the rice from the field. This partitive effect seems to be achieved by a principle of mutual definition between Range and Patient (Ashley ms). If the field of action is denoted by the Range, the Patient is taken implicitly to be one or more of the objects that normally belong in the field. In a sentence meaning 'I'll peel some of the mangos', for example, the grammatical form of 'mangos' is such that it has to be understood as expressing Range, not Patient; a forced paraphrase to illustrate the relationships might be 'where the mangos are is where I'll do the peeling'. No Patient can be expressed overtly in this arrangement. Nevertheless, mangos are what the action happens to; they get peeled. This could be taken as an obligatory application of the principle (Chapter 11) that if a role element is culturally conventional or is predictable from the context, it need not be expressed.

Sometimes role combinations are part of the meaning of words, as in the case of sell and buy, which combine with identical sets of role elements but coalesce the Agent with Source in the first instance and the Agent with Goal in the second. Normally, however, each role element is distinct. Nevertheless, it sometimes comes about that two distinct role elements denote the same thing in a particular context, counter to the usual expectation. Mechanisms are available to express this identity. For example, cut takes an Agent and a Patient that are normally distinct. That is, the usual expectation in the use of cut is that the Agent and the Patient have different identities, in contrast with, say, sell, where the expectation is that the Agent and the Source are the same. For a particular instance of *cut*, however, it may turn out that the Agent and the Patient are asserted to be the same, as in *he cut himself*. The reflexive here expresses the identity of Patient with Agent in a predicate that normally assumes them to be separate.

The minimal expression of role relationships in surface structure is the clause. Usually a predicate of the kind whose meaning is partly defined in terms of role relationships corresponds to the verb of a clause, a predicate adjective, or a predicate nominal, while the role elements correspond to subjects, objects, and prepositional phrases of various kinds.

Clauses may themselves, of course, be embedded within other clauses and compressed in various forms. Lexical propositions (that is, propositions whose predicates are lexical predicates, defined largely in terms of role relationships) may therefore be expressed not only as independent clauses but as dependent clauses like *when we get home*, as embedded clauses like *who cut down the tree* in *the workman who cut down the tree*, and even as adjectives like *sick* in *a sick elephant* or as nouns like *man* in *the man*, which corresponds to a more explicit identificational form like *the one who is a man* (see Langendoen 1969 and 1970 for an extensive discussion of the relation of propositions to embedded and compressed forms of clauses).

Even though role relationships typically appear within the clause, the same relationships may at times be expanded into grammatical forms considerably larger than the clause itself. John Austing (ms) describes how the expression of some role relationships in Omie take one form within the clause and another form between stretches of speech that involve more than single clauses.

A study of the lexical propositions of any language shows up sets of predicates that are similar in meaning but that differ from each other in specifiable ways that find parallels in other sets of predicates. The principle of which parallel sets of predicates are grouped is that of **role sets** (Fillmore's case frames), which will be discussed in more detail in 10.2. All predicates that take, say, an Agent, a Patient, a Factitive, and an Instrument have the same role set. It is likely that any predicate in this group will have a second role set consisting of Patient and Factitive alone, and a third role set consisting of Patient, Factitive, and Noninstigative Cause: as an example of the first, take *the host (A) broke the ice (P) into small pieces (F) with a machine (I)*; the second, *the ice (P) broke into slivers (F)*; the third, *the ice (P) broke into floes (F) from the thaw (C)*. These three role sets are systematically related; the differences among them are reflected in many other predicates as well.

CHAPTER NINE

SEMANTIC DERIVATION

To continue on with the low level content relationships out of which the more extensive semantic complexes of discourse are built, we turn to some of the relationships among role sets. These relationships can be expressed by the notion of *semantic derivation*, in which a *base* predicate that carries what we might think of informally as the main meaning is combined with one or more of a small number of what Frantz calls *abstract* predicates. These predicates are abstract in the sense that they are normally expressed only in combination with base predicates, whereas the base predicates can be expressed independently of any abstract predicates. It is convenient to treat predicates that are expressed by affixes as abstract predicates; but some abstract predicates have no phonological form of their own. What is an abstract predicate in one language might not be one in another, though there seems to be great consistency in the abstract status of at least a few. Abstract predicates include the developmental that relates *red* and *redden*, the agentive that relates *the water boiled* to *we boiled the water*, and others that are taken up later.

Before discussing the kinds of abstract predicates that can take part in a semantic derivation, it is useful to categorize base predicates according to some common semantic characteristics. Some predicates denote states, like *cold*. Other denote processes, like *melt* and *rain*. Still others denote actions, like *walk*. Others combine actions and processes, like bend. Finally, some predicates denote experiences, like hear. Whether every predicate fits into one of these five categories remains to be seen; but these five are common enough that they keep turning up in semantic discussions (Chafe 1970). They relate regularly to lexical roles, but not in a one-to-one way: states and processes both take Patient, actions take Agent, action-processes take Agent for the action component and Patient for the process component, and experiences take Experiencer with or without Patient. Some states, which correspond to the ones Chafe labels ambient, take Range but not Patient. Some of the meteorological predicates mentioned in the last chapter are ambient states like hot and cold. There are also ambient processes with Range but not Patient: rain and snow in the senses that are expressed as verbs tell what is happening in a region, but do not assert that there is something it is happening to.

The first abstract predicate to be combined with base predicates is the developmental predicate.[1] The developmental denotes a process that is defined by the state that results. Redden, for example, denotes a process of color change that has as its terminal point the state red.

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[1] Most linguists who write about semantic derivation have used the term inchoative for developmental. Since that term has a long prior history in classical grammar, used in aspectual sense that denotes an action that is getting underway or being undertaken, I prefer to leave it as an equivalent to inceptive or ingressive, and use developmental instead for change of state.

The **agentive** abstract predicate adds an action component and the corresponding Agent role to a process. In English there is a process predicate *break* as in *the rope (P) broke*. It has an agentive counterpart, in this case phonologically identical, that gives an action-process as in *the miner (A) broke the rope (P)*. The process to which the action is added may itself be the result of a semantic derivation like the developmental, as in *the chef (A) reddened the frosting (P)*. The agentive abstract predicate adds an Instrument as well as an Agent: *The chef (A) reddened the frosting (P) with pomegranate juice (I)*.

Before going ahead with the discussion of other abstract predicates it might be wise to pause and develop a means of representing base and abstract predicates. The full scheme of representation will be discussed in Chapter 13. Here, as in the discussion of proposition consolidation given in connection with the Instrument role in the last chapter, a proposition is represented as a tree. For typographic convenience it is turned on its side, with the root toward the left and the leaves toward the right. Predicates, whether base or abstract, are underlined and written immediately to the right of the node that dominates them, which represents the entire proposition of which they are a part. The arguments that go with a predicate are represented by nodes beneath it, connected to the same dominating node as the predicate itself. Role relationships are represented as one-place predicates, each with its corresponding argument. Instead of being underlined, like base and abstract predicates, they are capitalized according to the usual convention. Some arguments could be broken down further into propositions, but are not because their further analysis is not pertinent to the example in which they appear. These unanalyzed propositions are simply cited in their output (phonological) form. Figure 9.1 shows the relationships of abstract and base predicates and roles in the state *red*, and process *redden*, and the action-process *redden*.

The *causative* abstract predicate has already been discussed in relation to the Agent role. It takes its own Agent, independently of the Agent of the base predicate that it dominates. Its Patient is the proposition that contains the base predicate. When the transformation of proposition consolidation is applied, the causative Agent is made the Agent of the resultant proposition and the Agent of the base predicate is shifted to another role; that is, for subsequent transformations that involve the consolidated proposition, the Agent of the base predicate is treated as though it were an Experiencer, Benefactive, or Goal (depending on the role structure of the base predicate and probably on the language) when the role-related arguments are matched to surface grammatical categories.

As far as I know causative abstract predicates never dominate state predicates directly. They combine readily with process and action-process predicates, and may also combine with action and experience predicates. This is illustrated in Huichol, which has the following forms:

zúure 'red' state
zʌ́ʌ 'run out, terminate' process
míe 'go' action
qee or *qéi* 'carry in the hand' action-process
zéiya 'see' experience[2]

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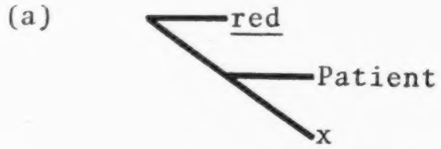
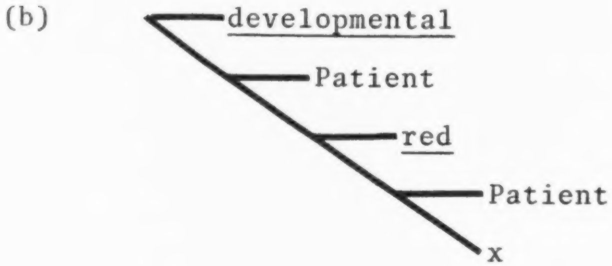
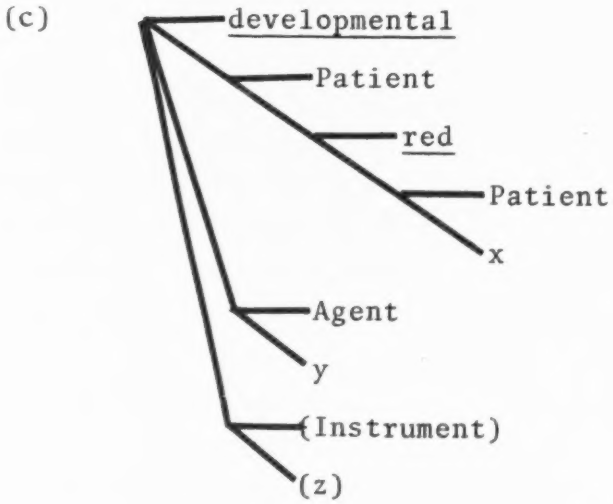
[2] See Grimes 1964 for a fairly complete description of Huichol surface forms. The sounds of Huichol are stops *p t c [ts] k q* $[k^w]$ *ʔ*, fricative *z* retroflex , nasals *m n*, flap *r*, semivowels *w y h*, vowels *a e i u ʌ* high back


(a)
red
Patient
x

red (state)


(b)
developmental
Patient
red
Patient
x

redden (process)


(c)
developmental
Patient
red
Patient
x
Agent
y
(Instrument)
(z)

redden (action-process)

FIGURE 9.1. Base predicate *red* (a) with developmental (b) and agentive (c) semantic derivations.

unrounded . Double vowels are rhythmically long. Each syllable (CV, CVV) is high (´) or low (no accent) in tone. Foot boundaries are indicated by ± and word space. Huichol is a Uto-Aztecan language spoken in the states of Jalisco and Nayarit, Mexico.

The abstract predicates are manifested in surface forms by affixes or by specialized verb phrases:

State*-tʌ* *p-áa+-tʌ́a* (State-ing did-this-way-go) 'go to be in such and such a state; developmental (this could be considered a specialized idiom)

-ya or *-ríya* 'agentive'

-tʌa 'causative', a suffix fortuitously similar in its phonological form to one form of the stem 'go' of the finite verb of the developmental phrase

The following forms illustrate the possible combinations of base predicates and abstract predicates. X, Y, and Z are used instead of nouns to keep the examples short. Modal, aspectual, object, and directional affixes are used as needed, and morphophonemic changes are made without further explanation. Hyphens separate morphemes:

X pʌ-zúure 'X is red' state

X zúu+ré-tʌ p-aa+-tʌ́a 'X turned red' developmental

Y p-íi+-zuuríi-ya X 'Y turned X red' agentive

Y X zuu+ré-me p-áa+-yéi-tʌa 'Y caused X to turn red' causative (*-me* indicates lack of surface subject agreement between components of the developmental phrase, whereas *-tʌ* showed surface subject agreement. *yéi* is the stem form of 'go' as a developmental that is appropriate in the causative.)

?Z p-íi+-zuuríi+-yá-tʌa Y X 'Z caused Y to turn X red' causative of agentive; is plausible but grammatically overloaded in most contexts.

X p-úu+-ti-zʌ́ʌ 'X ran out; there is no more X' process

?Y p-íi+-zʌʌ-ríiya X 'Y terminated X' agentive (sounds forced)

Y p-íi+-zʌ́ʌ-tʌa X 'Y caused X to run out' causative of process; for example, Y ate up all his corn supply (X).

X pʌ-míe 'X is going' action

?X ?uu-míe-tʌ p-aa+-tʌ́a 'X got under way' causative of action; sounds unnecessarily periphrastic, but does carry the inchoative idea of beginning an action.

Y p-íi+-yeiká-cí+-tʌa X 'Y caused X to go' (yeiká with the connective -cí is the stem form of 'go' that is appropriate with the causative.)

Y p-é-i+-qei X 'Y carried X away in his hand' action-process

Z p-é-i+-qéi-tʌa Y X 'Z caused Y to carry X away in his hand; Z gave X to Y' causative

Y p-íi+-zéiya X 'Y sees X' experience

Z p-íi+-zéi-cí-tʌa Y X 'Z caused Y to see X; Z showed X to Y' causative of experience

Abstract predicates always leave a trace in the surface form, otherwise there would be no justification for recognizing them. In Huichol the trace is usually an affix. In English the trace that signals an underlying semantic configuration may be purely syntactic. Compare:

X is red (state)

X reddened (developmental, marked by -en, resulting in a process)

Y reddened X (agentive or causative, indicated syntactically)

Y made X redden (causative of abstract developmental)

Y made X turn red (causative of explicit, unconsolidated developmental)

Y made X red (causative, developmental implied but not expressed)

As mentioned earlier, the use of full words such as auxiliaries to express abstract predicates in English probably reflects a higher degree of attention the speaker wishes to call to the abstract predicate itself.

There has been some discussion (for example, by McCawley) as to whether a causative abstract predicate is needed for English, or whether a simple agentive is sufficient to account for what goes on. Discussion centers around the semantics of verbs like *kill*, which is semantically close to the phrase *cause to die* but not identical with it. This difference could be expressed by making kill simply the agentive counterpart of *die*, and leaving *cause to die* as a causative that is not consolidated because of a prominence element attached to the abstract predicate.

Terena, an Arawakan language of southern Brazil (Butler ms), has a system of morphological marking that shows that it is necessary to recognize both agentives and causatives in semantic derivation. For example take a stative stem *xuna* 'strong' that takes only a patient as in *xúnati* 'he is strong'. This stem has an agentive counterpart with a prefix *ko-/ka-* 'agentive' and thematic suffixes *-k* and *-o*, together with a pronominal object suffix *-a* that represents the patient in the presence of the agent: *koxunákoati* 'he is strengthening it'. From the agentive form, however, a causative form can also be built: *ikoxúnakoati* 'he is causing it to be strong'. The difference in meaning is minimal; but in Terena it is regular throughout two classes of verbs.

The explicit indication of both an agentive and a causative derivation in Terena does not, of course, constitute a proof that all languages have both abstract predicates. It may be that English uses only the agentive, and that what corresponds to the Terena causative is parceled out in English semantics among the lexical predicates that are symbolized as *cause*, *make*, and *have*; these predicates cannot be consolidated, but are required to take sentence complement constructions (Rosenbaum 1967). On the other hand, since we are on the borders of what appear to be universal semantic relations to be expected in all languages, it may be that our study of English to date has not been sufficiently profound to show how agentives and causatives are related in English semantics, whereas that distinction happens to be indicated obviously and consistently in Terena and is therefore easily noticed.

Nonagentive probably needs to be given the status of abstract predicate as well. This semantic element takes away the Agent that would normally be present in the proposition that it dominates, whether that proposition contains an action predicate, an action-process, or a causative complex.

There is a great difference semantically between a predicate which, though it normally takes an Agent, has that Agent suppressed by semantic derivation and a predicate which contains an Agent semantically, yet the Agent is not represented in the surface form because it is recoverable from the context. In *they entered the room and found the box* there is no question as to who the Agent corresponding to *found* is; by the regular deletion pattern of English it has to be *they* for both verbs of the conjunction. If, however, there is no Agent, then English uses a passive-like construction: *many races were run in this arena, suppose* *the box is never found, finally the cargo got shipped out by air*. Even though the ordinary lexical content of the verbs involved suggests that it was people who ran the races, didn't find the box, or shipped the cargo, the reason no Agents are expressed is not that they are recoverable from the context, as was the case with the Agent of *found* in *they entered the room and found the box*. The Agents are missing because they are irrelevant to the semantics of those particular sentences; to try to supply them from somewhere, even in the indefinite form of *by someone*, *by various people*, is beside the point of what is being said. The nonagentive abstract predicate expresses the speaker's decision that the Agent should be left out of the semantic picture even though the base predicate normally takes an Agent.

Nonagentives become clearer when we turn to languages where this kind of thing is indicated more explicitly. Most of the indigenous languages of the Western hemisphere have an inflectional pattern that is often called the passive voice inflection for verbs. In very few languages, however, does the parallel with Indo-European passives hold; the Western hemisphere nonagentives (often called either passives or pseudo-passives) permit no expression of the Agent. Corresponding to an expression like 'John cut the meat with a knife' there is a way of saying 'the meat got cut' or even 'the meat got cut with a knife'; but it is quite rare to find a language on this side of the Atlantic that permits 'the meat was cut by John' or 'the meat was cut with a knife by John' within the bounds of a single clause. In many languages of the hemisphere the nonagentive is like an inverse for the developmental derivation, in that it defines a state by telling the process, say cutting, that brought about the state, while the developmental defines a process by telling the state, say redness, that is the end result of the process.

The Huichol forms given a few pages back illustrate nonagentive semantic derivation. In Huichol the nonagentive (indicated by *-ri* or *-ya*) requires the presence of at least a Patient, so that there can be no nonagentive counterpart to pure actions, as in the case of the English *many races (F) were run here*. I repeat the agentive forms given earlier to show how their nonagentive counterparts match. The noun surrogates X and Y are shifted around syntactically to eliminate the effects of a low level object deletion rule (Grimes 1964) that might otherwise prove confusing.

X p-úu+-zúurii+-yá-ri 'X got turned red'
    Y p-íi+-zuuríi-ya X 'Y turned X red' agentive
X zuu+ré-tʌ p-áa+-yéi+-tʌa-ri 'X was caused to turn red' nonagentive causative of developmental
    Y X zuu+ré-me p-áa+-yéi-tʌa 'Y caused X to turn red' causative of developmental
?Y p-íi+-zuuríi+-yá-tʌa-ri X 'Y got caused to turn X red' nonagentive of causative of agentive, an unlikely form
    ?Z p-íi+-zuurí+-yá-tʌa Y X 'Z caused Y to turn X red', equally unlikely
? X p-úu+-zʌ́ʌ-rii+-yá-ri 'X got terminated' nonagentive of agentive of developmental
    ?Y p-íi+-zʌʌ-ríi-ya X 'Y terminated X' agentive of developmental, sounds forced
X p-úu+-zʌ́ʌ-tʌa-ri, or more likely *X p-úu+-zʌ́ʌ-cí-tʌa-ri* 'X was made to run out' nonagentive of causative of process
    Y p-íi+-zʌ́ʌ-tʌa X 'Y caused X to run out' causative of process

?X p-úu+-yeiká-cí+-tʌa-ri 'X was caused to go' nonagentive of causative of action

Y p-íi+-yeiká-cí+-tʌa X 'Y caused X to go' causative of action

X p-ée+-qée-ya 'X got carried off' nonagentive of action-process

Y p-é-i+-qei X 'Y carried X away in his hand' action-process

Y p-úu+-qéi+-tʌa-ri X 'Y was caused to carry X away in his hand, y was given X' nonagentive of causative of action-process

Z p-é-i+-qéi-tʌa Y X 'Z caused Y to carry X away in his hand; Z gave X to Y' causative of action-process

X p-úu-zéi+yá-ri 'X got seen' nonagentive of experience

Y p-íi+-zéiya X 'Y saw X' experience

Y p-úu-zéi-cí+-tʌa-ri X 'Y was shown X' nonagentive of causative of experience

Z p-íi+-zéi-cí-tʌa Y X 'Z caused Y to see X; Z showed X to Y' causative of experience

The abstract predicates already discussed seem fairly well established. Further thought needs to be given, however, to the status of what is readily recognized as a *nominal* predicate. The nominal has the effect of adding the Essive role to a predicate in much the same way that the agentive adds the Agent role. The question that needs to be answered about the nominal has to do with the circumstances under which it is appropriate to nominalize. In terms of general discourse structure there is a discernable tendency for identificational information to be nominalized; but this is by no means the end of the matter. English, and the Indo-European languages in general, seem to have a propensity for frequent use of nominalized propositions that is shared by few other language families in the world. Where we would say the explosion occurred at noon, the corresponding verb-oriented expression in many other languages would be on the order of 'something exploded at noon'.

One factor in the use of nominalizations seems to be the relative prominence of different propositional elements. Content elements that are more central to the staging of what is being said are less likely to be nominalized, while other content elements that are being given less attention at the moment are candidates for the Essive case. The use of nominalizations in discourse therefore seems to be related to thematization, discussed in Chapter 21.

Another way to approach nominalization is to notice that the Essive role ordinarily carries with it the notion of embodiment of a state. Any proposition can be indexed as a whole, as for example with it or that, and in some cases can be quantified. This referential permanence, by which we can keep referring back to the same state of affairs as well as to the same object, may be a factor in the nominalization of propositions. Those propositions whose permanence as a referential entity the speaker wants to call attention to may be the ones to which the speaker attaches the Essive; but much study is needed here. Perhaps each of us 'gives to airy nothing a local habitation and a name'.

Referential permanence, expressed by the Essive, is part of the lexical structure of many predicates that are customarily expressed as nouns like house and moment. On the other hand, there may be a denominal abstract predicate which, in the same way as the nonagentive removes an Agent, takes the Essive from a predicate that normally requires it: all the riders were booted and spurred is a denominally based expression related to the nouns boot and spur.

The addition of an Essive does not preclude the presence of other roles with a predicate. Even in the nominalized form we have *a run down the slalom course with my new skis*, *the generals' 1944 bomb attempt on Hitler's life*, and the like. On the other hand, role information associated with a predicate that takes the Essive is so often redundant that it can be omitted as old information. The frequency with which additional roles are actually expressed with Essive predicates is on the average likely to be lower than the frequency with which additional role information is given with the non-Essive counterparts of the same predicates.

The interaction between the Essive and other cases is not always the same. English *trainer* is a nominal form based on the Agent when it refers to the person who tapes the football players' ankles, but based on the Range when it refers to an aircraft in which a flight instructor imparts instruction to a student pilot. *Strainer*, on the other hand, usually refers to the Instrument with which a cook takes water out of food; but it can have to do with the Agent, either alone as in *this wrestler is a grunter and a groaner and a strainer*, or with the Agent and other roles as in *the press officer is a real credibility strainer*. Neither example of the agentive semantics of this noun is very likely; yet Agent is the most likely with *trainer*.

Some sets of predicates are related closely by their role similarities. There are, for example, sets of predicates that have the same role relationships but differ in the way the relationships are staged.[3] As far as content is concerned, *I like your new coat* involves an Experiencer who is reacting to a Patient as stimulus; so does *your new coat pleases me*. It is the point of departure that is different. The same holds for *Jane is Hal's wife* and *Hal is Jane's husband*; the same relationship is presented to the hearer from two different angles.

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[3] Other differences in meaning go along with the differences in thematic properties. *Like* does not mean

These pairs of *converse* predicates should be compared with other predicates for which role relationships are constant and there are distinct possibilities of staging, but for which the presence of a single lexical representation suggests that there may be no further difference in meaning associated with each thematization. *Rent* expresses one of these: *Karen rented the apartment from Mrs. Anderson* and *Mrs. Anderson rented the apartment to Karen* describe the same situation staged in two different ways. *The back yard is swarming with mosquitoes*, *mosquitoes are swarming in the back yard*, and *there is a swarm of mosquitoes in the back yard* are thematically distinct but have the same roles associated with the predicate.

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exactly the same thing as *please*, nor are *husband* and *wife* completely synonymous. The point is that those differences in meaning are not related to the role system, but rather go along with the side of the role relationships that the speaker wishes to stage for the hearer. See chapter 21.

CHAPTER TEN

OTHER RELATIONSHIPS AMONG PREDICATES

1. ASSOCIATIVE RELATIONSHIPS

Part of the meaning of a lexical item involves its being related to other propositions in ways that are modeled here in the form of specialized predicates known as roles. To know the role structure of a lexical item does not imply knowing its meaning, however; it implies only that we know some of the essential elements of its meaning. Different lexical predicates like fold and snap have identical role structures, and a single lexical predicate like hit may take a variety of role structures.

Another part of the meaning of a lexical item involves its being related to other lexical predicates in other ways than through role relationships. A general term for these other relationships is *associative*, though as we shall see they can be further divided, so that the term for them may drop out of use as soon as the picture gets a little clearer.

Inclusion relationships are an important property of lexical items. A felt tip is one kind of pen, which in turn is one kind of writing instrument, which is an implement or tool, which is an artifact, which is a thing. There are pens that are not felt tips, writing instruments that are not pens, implements that are not writing instruments, artifacts that are not implements, and things that are not artifacts. Harold C. Conklin was one of the first (1955) to show how inclusion hierarchies differ from language to language. Dixon (1971) cites a type of ethnolinguistic evidence for inclusion from a language situation that brings these hierarchies to light in a forceful way. Quillian (1968, 1969) finds that each unit in his model of semantic relations must include a pointer to another unit that is the **superset** unit of the first; in other words, a unit that represents the next most inclusive level of the inclusion hierarchy. Both he and McCalla and Sampson, who follow up his work (1972), find that the ability to trace superset chains is essential in resolving ambiguities and interpreting texts.

Another kind of semantic relationship among lexical items is the **componential** relationship. Components express analogical relationships among sets of meanings: *saw* is to *knife* as *drill* is to *awl*, or *grandfather* is to *father* as *son* is to *grandson*, and so forth. Componential analysis developed from the work of Floyd G. Lounsbury (1956) and Ward H. Goodenough (1956), with a useful summary by Wallace and Atkins (1960).

Dixon (1971) points out that this kind of analysis, which is closely related to the use of semantic **features** by many linguists, works well for a part of the vocabulary that he labels **nuclear**, but is not particularly useful for the nonnuclear vocabulary, which can instead be defined by using nuclear words. The differences between two nonnuclear words that are defined in terms of the same nuclear word cannot be analogized to other pairs of words, so that the notion of semantic components breaks down there. Glock and I have also pointed out (Grimes and Glock 1970) how even obvious semantic components like the progenitor relationship that is part of the analogy *grandfather : father :: son : grandson* cited above apply only within a limited range rather than throughout the vocabulary. One would, for example, inquire only playfully about the progenitor component when investigating the meanings of a set of words like *house*, *shed*, *barn*, *skyscraper*, *church*, *store*. Nevertheless, for limited parts of the set of lexical elements, there are relationships that enter into the differences between many sets of pairs, so that semantic features or componential structure is a factor to be recognized wherever it is pertinent, but not to be forced where it is not.

Some inclusion hierarchies are formed by washing out or neutralizing a distinction that is expressed by a semantic feature. In the press recently, for example, I notice that a professional society recently had its sessions conducted by *chairpersons*, since it was felt to violate the spirit of the women's liberation movement to have one session run by a *chairman* and the next by a *chairwoman*, as was customary in the olden days. The latest news tells of a meeting held under the gavel of a *chairone*, awesome indeed. The meaning of *person* is related to the meanings of *man* and *woman*, but without the male-female feature that also distinguishes *boy* from *girl* as kinds of *child*, *ram* from *ewe* as kinds of *sheep*, and so on through a sizable chunk of vocabulary.[1]

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[1] Another English expression for the next level up the hierarchy of inclusion from *man/woman* is *man*: to point out that *man's days on the planet may be limited by pollution or by nuclear war* does not imply that the earth will eventually be populated by women. The use of one word to express units at more than one level of an inclusion hierarchy is not uncommon.

We are aware of connotations in meaning, but as yet we know very little about integrating them into linguistic theory. Connotations have to do with the emotional and evaluative overtones of words. We are uncomfortable with them probably because in most of linguistics we tend to be happy if we can make a little sense in talking about concrete denotative meaning. Nevertheless, connotations are always with us. Even Aristotle (Rhet. 3:2) commented that 'pirates nowadays call themselves "purveyors"'.

Osgood, Suci, and Tannenbaum (1957) have developed a measurement technique known as the semantic differential that makes it possible to compare connotations. Their technique locates concepts in a space dominated by three dimensions: evaluation (exemplified by ratings on scales like good-bad, positive-negative, or pleasant-unpleasant, potency (hard-soft, heavy-light, strong-weak) and activity (active-passive, fast-slow, excitable-calm). Words with similar connotations cluster in the same region of the semantic space. While the semantic differential does not provide an explanation of the phenomenon of connotation, it does provide a way of talking about similarities in connotational meaning.

Linguistically it is attractive to think of connotations as one kind of associative tie between lexical elements. There are fairly standard evaluative connotations attached to many words, for example, while others are neutral or take on their evaluations from the context along. In one political speech, for example, I find the following:[2] Twelve terms stand for things that generally have a good connotation: *firm handling*, *concise*, *clear*, *vigor*, *heritage*, *spiritual*, *courageous*, *standing up for*, *rights*, *great*, *majority*, and possibly *architects*. Fifteen stand for things that generally have a bad connotation: *impressionable*, *victim*, *ptomaine*, *disparage*, *irretrievable*, *appeasement*, *capitulation*, *sellout*, *treason*, *folly*, *crisis*, *buckled under*, *extortionist*, *non-democratic*, and *mob*. Eight terms are normally more neutral than these in their use in English in general; but in this discourse they take on the emotional coloring of Good Things: *our system*, *enforced*, *tough*, *children*, *deal*, *modest*, *traditional*, and *silent*. Thirty other terms, a number that is consonant with the general tone of the speech, are basically neutral but in this context are given negative connotations: *revolution*, *radical*, *spawning*, *sanctuary*, *susceptible*, *or* (used to state an equivalence between a neutral term and a loaded term), *left*, *dispensed*, *theatrical*, *problem*, *confronted*, *turbulent*, *patently*, *squads*, *moral*, *idealistic*, *thing*, *junior*, *secreted*, *smiling*, *benign*, *challenge*, *next*, *waving*, *non-negotiable*, *demands*, *pitching*, *brown shirts*, *white sheets*, *lounges*.

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[2] Vice President Spiro Agnew, quoted in Time, 1970 May 11.

The text discussed in the last paragraph illustrates another point about connotative meanings: to a greater extent than any other aspect of meaning, they are idiosyncratic. Anyone who reads the same text may query my reactions to the way particular words are used, or even to whether their good and bad connotations are conventional or by context. I am not surprised when someone disagrees with my personal readings (although I can report general agreement with the students I tried the speech out on); but I will be surprised if anyone fails to find some division of terms into good by convention, good by context, bad by context, and bad by convention.

The reason why connotations differ probably goes back to the emotional colorings of the circumstances under which each of us learns a word. How we feel about a situation is not as easy to calibrate against other people's feelings as our perception of the visible components of the situation is to calibrate against other people's perceptions of it. As a result, emotional and evaluative associations tend to be less standardized than are other kinds of associations that enter into our semantic reactions.

The idiosyncratic nature of connotations is only part of a more general problem: how in the world does anybody ever understand anybody else? Even in the supposedly straightforward area of so-called denotative meaning, where definitions can be given and tests made, speakers of the same language do not always mean the same things by the same words. This, like emotive reactions, probably goes back to the observation that everybody learns everything under different circumstances, so that there is no way of guaranteeing compatibility between the semantic systems of any two people. The amazing thing, which I do not pretend to be able to account for since as a linguist I take it as given, is that the area of compatibility is great enough that any effects of incompatibility can eventually be overcome by talking enough.

To illustrate how idiosyncratic elements are present in all kinds of meaning, pose the following questions to married couples of your acquaintance: (1) Is zero an even number? (2) Who are your second cousins? (3) Is turquoise a kind of blue or a kind of green?

Not all kinds of associative ties are capable yet of being analyzed and classified even as well as connotations. The loosest type of associative tie is the **collocation**. A collocation could be thought of as a relatively high probability that if one concept is present in a discourse, another one will be as well. For me, mention of *spring* (the season) generally elicits some talk about *grass* and *warmth* and *buds*, and talking about *carburetors* calls for *tuneup*.

The associative relationships I have mentioned may possibly be divisible into two kinds: **bounded** and **unbounded**. If Dixon is right (1971), the extent to which semantic features or components in a componential system apply to the study of meanings is strictly limited. For any area of vocabulary there are a few components that operate to distinguish nuclear words. Even taken over all areas of the vocabulary the number of components is bounded. In the same way, if role relationships are taken to be the same in kind as other associative relationships (as is implied by Quillian's model), the number of role relationships is not unbounded. It is limited to not much more than the list given in Chapter 8. Inclusion hierarchies may be bounded in the sense that the superset chain (like *Chippendale : chair : seat : furniture : artifact : thing*) of any lexical item may have a finite maximum length. Going in the other direction from more inclusive to less inclusive, however, there is a sense in which the inclusion hierarchy may not be bounded. It seems as though for many superordinate or more inclusive elements in the hierarchy, we can always come up with one more subordinate or less inclusive element that they include; if this is so, that dimension of the inclusion relation may not be bounded.

As far as connotations and collocations go, however, there is no limit on the number of associations that a word can have. This is one reason why a model of semantic structure cannot escape taking in everything we know about everything. Furthermore, what we know and feel about everything changes constantly, even during a discourse, and that change in itself is an important element in accounting for the surface form of discourse as we shall see in Chapter 19. But as I said in Chapter 1, the way to confront the encyclopedia problem is not to duck around it and talk only about those aspects of language for which we do not need to know everything about everything, but to develop a conceptual scheme that contains generalizations powerful enough to permit us to manage a semantic system that embraces everything.

2. AREAS OF MEANING

Lexical predicates have different meanings, yet some are to a certain extent similar in meaning. In order to talk about how predicates differ or how they are similar it is useful to begin with those differences and similarities that can be attributed directly to the role relationships and associative relationships we have just discussed.

Many predicates take identical sets of role relationships. Fillmore, for example (1970), characterizes English _break_, _bend_, _fold_, _shatter_, and _crack_ as all having an Agent, an Instrument, and (using the terminology of this book rather than his, which is equivalent) a Patient. _Hit_, _slap_, _strike_, _bump_, and _stroke_, on the other hand, can take an Agent, an Instrument, and a Range. The first set all denote some change of state in the Patient, the second, contact with a surface indicated by the Range.

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Many predicates are capable of taking more than one set of role relationships in their arguments. *Break*, besides taking Agent, Instrument, and Patient (which I shall abbreviate as A I P) as in *I broke the window with a brick*, also takes A P as in *I broke the window*, I P as in *the brick broke the window*, and P by itself as in *the window broke*. Fillmore symbolizes these four sets of roles that go with change of state verbs using the common convention of parentheses to indicate optionality: *break* (A) (I) P. Surface contact verbs also take multiple role sets, but not the same sets as the change of state verbs. We can say *I hit the nail with a hammer*, A I R, or *I hit the nail*, A R, or *the hammer hit the nail*, I R. There is however, no form with R alone; **the nail hit* (the prefixed asterisk indicates a nonexistent form in the sense discussed) is not parallel to *the window broke*, but reflects still a different set of roles, probably P R, parallel to *the airplane landed*. Fillmore (1968) proposes a notation using linked parentheses (A)(I) R for the Agent-related part of the role structure of *hit*. The linked parentheses show that at least one of the pair A, I must be present as well as R.

It is tempting to try to classify predicates by the role sets that they take. It soon becomes clear, however, that clear cut groupings of predicates like the change of state group and the surface contact group are relatively rare. The reason for this is not hard to find. If we assume eleven standard roles, as we did in the first part of the chapter, then the number of possible role sets is 2^{11} or 2048. Even supposing that only a quarter of these combinations actually are used in a language, those 512 or so are numerous enough to suggest that classification alone is not an end in itself. Furthermore, since many predicates have more than one role set that they can take, each different combination of role sets yields a different class of predicates. Seem, for example, takes P like break; but it lacks the other three role sets that break has. The study of role systems, then, is not classificatory in any useful way, although classification is not impossible (and can, in fact, be done by computer).

What, then, is the point of recognizing role systems, if they yield a classification that is too rich to tell us anything? To answer this we must recognize first that a categorization of predicates in terms of role sets is not an air tight thing. We change the role set associated with a predicate when it suits us if we think we can get away with the innovation without losing the hearer. "But me no buts" is an extreme example in which a rhetorical predicate whose arguments are usually two or more complex propositions is given an Agent, a Patient, and a Goal for the nonce. Less radical are things like climb me up the ladder or soup the leftovers, both of which are easily recognized as nonstandard, or in the narrow sense ungrammatical, yet each of which would certainly elicit the correct reaction from most speakers of English if given as a command. There is, I think, everything to be gained by trying to build our theory of language in such a way that it not only characterizes the normal, expected combinations of elements that are the bread and butter of everyday speech, but also recognizes that speakers have liberty to innovate within certain bounds, and that when they do innovate, the way in which they are understood is also systematic.

There is, then, a certain invariance in meaning inherent in each role relationship, whether it is being used in conventional association with a predicate or whether the speaker has decided to put things together in a nonstandard way. Furthermore, there seem to be characteristic patterns of role relationships that stick together. For example, for change of state verbs the (A) (I) complex of role sets seems to be interchangeable with a (C), or Optional Non-instigative Cause. Parallel to _I broke the window with a brick_, A I P, we have _the cold broke the window_, C P, with the observation that _the cold_ is not Agent, since it is not performing any action or in any sense acting deliberately, nor is there any conceivable instrument we can think of that it might use. Neither is it Instrument, since there is no normal sense in which its use could be attributed to some Agent. (In suitable contexts such as fairy tales _cold_ could be used by somebody to break something: _the sorcerer broke the castle walls open with cold_. This, however, is the full scale Agent-Instrument pattern, not Non-instigative Cause.)

Some role relationships take precedence over others in regard to their mapping to surface grammar. In English, for example, unless there are special conditions of staging and informational coherence (Halliday 1967a, b), the Agent of a proposition will be the surface subject; if there is no Agent, the Instrument will be the subject; and if there is no Instrument, the Patient will be the subject. Linguistics has a long history of classifying surface grammatical patterns (Postal 1964). It therefore comes as a mild surprise to some to find that the classification of the semantic categories that stand behind surface patterns is many times more complex, so much so that it ceases to be useful.

Role sets, however, are not assigned helter-skelter to predicates. As a matter of fact, many of the multiple role sets associated with predicates are interrelated in just the ways that in Chapter 9 are attributed to semantic derivational processes. We can take *break*, for example, as having an underlying process predicate that takes only the Patient, as in *the window broke*. The agentive derivation of this actually adds not just the Agent, but the whole (A) (I) or (C) complex.

It is customary in lexicography to speak of various **areas of meaning** of a word. In dictionary making each of these areas is represented by a subentry (Robinson 1968). One of the ways in which areas of meaning are distinguished is by role sets. *Break* as something that can happen to a stick, corresponding to P, belongs to a different subentry than *break* as something that a person can do to a rigid object, possibly aided by a tool, corresponding to A P and A I P. There are other ways of distinguishing subentries, of course; different kinds of contexts entail different areas of meaning of a word. *Key* as an implement for unlocking a door is not the same area of meaning as *key* for following a map or key for keeping a wheel from turning on a shaft. Even where contextual differences are involved, however, there may be associated differences of role sets. In sports like basketball, *break* is used to describe a quick maneuver involving change of direction, and in that context takes an Agent and possibly a Range, but no Patient or Instrument.

CHAPTER ELEVEN

THE ARGUMENTS OF PROPOSITIONS

Role relationships hold between a predicate and its arguments. We have looked at predicates, at least to the extent that they are involved with their arguments, and we have looked at the role relationships themselves. Now we will look at the arguments.

1. CONSTRAINTS INVOLVING ROLES

The number of arguments that a predicate can take ranges typically from one, as in *the snow (P) is white* to five or six, as in *the bellhop (A) brought me (G) a note (P) from the lady (S) on a tray (I)*, which load down the available surface structures enough that one begins to wonder whether the Instrument is an Instrument or part of a strange sounding Source, *the lady on a tray*. It remains to be explained why no lexical predicate takes more than six arguments; the answer undoubtedly has to do with the overloading of memory by having too many daughter nodes attached to a single parent node. Furthermore, when a predicate is capable of taking more than one role set, the sets often differ in the number of arguments involved. The familiar change of state complex {(A) (I) | (C)} P F permits two, three, or four arguments: P F *the jar broke to pieces*, A P F *she broke the jar to pieces*, I P F *the hammer broke the jar to pieces*, C P F *the noise broke the jar to pieces*, and A I P F *she broke the jar to pieces with a hammer*.

There are two senses in which it can be said that an argument is optional. For an accurate characterization of the role system of any predicate it is necessary to be able to distinguish both. An argument may be optional in the sense that it may or may not be part of the meaning of a particular use of the predicate. A, I, and C in the example given in the last paragraph are semantically optional in this sense; when they are there, they are part of the meaning, and when they are not, there is no implication that they are 'understood' or in some sense to be taken into account. In the first example above, the jar broke to pieces, there is no implication that an Agent is lurking in the background with an Instrument in his hand, or possibly even that there is a Noninstigative Cause to be found. The jar broke, and that is that.

The other sense in which an argument can be said to be optional I will call cohesive optionality or deletability, in the sense developed in Chapter 19. Here an argument is part of the semantics, but is presumed to be known to the hearer either because it is part of the situation of speaking, because it is the culturally expected argument for that situation, or because it has been mentioned recently enough that it does not need to be mentioned again. Yet it is part of the meaning; the fact that it is not expressed falls under the general principle of recoverable deletion (Chomsky 1965.144-146). All gone? uttered with one hand on the coffee pot involves a Patient, the coffee, but it is not expressed because it is pointed to nonlinguistically in the situation of speaking. He's eating has an explicit Agent, but a Patient that is deleted because it is the culturally expected Patient for that action, and there is no attention being called to it. He's eating fried eels would probably not be subject to deletion, at least at our house, because the Patient is unusual enough that it does not come under the cultural criterion for recoverability. In the same way, Factitives are usually not expressed unless there is something special about them, on the grounds that the expected results of most actions are widely known. We rarely bother with the Factitive in something prosaic like *the jar broke to pieces* unless we do it to make the whole action prominent; we say *the jar broke*, assuming that everyone knows that pieces were what it broke into. On the other hand, if it were the case that *the jar broke into half-inch crescents*, something a little out of the ordinary for jars breaking, we would express the Factitive. Finally, in *I went to the store and bought potato chips*, we would say that *bought* has an Agent, but that since this Agent is the same as that of *went* and the two are grammatically conjoined within a sentence, the Agent of the second verb does not have to be expressed. In other cases there may be a reduced form of expression such as pronominalization, in which only minimal information is given about an argument because the rest coheres from the preceding context.

The interrelationship of arguments within role sets has already been mentioned. One kind of condition is a threshold condition symbolized by linked parentheses: (A)(I) R in the role specification of surface contact verbs requires that at least one of the arguments in the linked parentheses be present: A R *the batter hit the ball*, I R *the bat hit the ball*, or A I R *the batter hit the ball with the bat*, but never R alone: **the ball hit*.[1] Another kind

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[1] This does not say that *the ball hit* is not possible in English. It is possible, but only if *the ball* is

Instrument in this role set or Patient in a different role set in which hit is not a surface contact action but a description of processes affecting a projectile.

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of condition is a disjunction, symbolized by braces: {(A) (I) | (C)} P F for change of state verbs (using a vertical line to separate the terms of the disjunction; this is equivalent to writing one term above another and using large braces to enclose them). This means that either one member of the disjunction will be used or the other, but not both. Many-termed disjunctions are also possible in which at most one member of the disjunction can be used.

In the notation I am using here, simple parentheses () always indicate semantic optionality. If the role inside the parentheses is chosen, it is part of the meaning; if it is not chosen, then we are in a different area of meaning that does not involve that role. Linked parentheses ()() indicate a different kind of optionality, in which any argument may be left out of the meaning, but at least one must be present. Braces with vertical separators indicate still a different kind of optionality, in which one and only one of the arguments must be chosen. These kinds of optionality are related by an algebra of their own, so that the characterization of roles for change of state verbs can be expressed a little more precisely than in the last paragraph as ({(A)(I) | C}) P F.

One of the less fruitful consequences of earlier generative transformational grammars was the ironfisted way in which they claimed that you couldn't say this and daren't say that. The starred form, which I have used sparingly for things that are obviously impossible, at least in the sense I have specified for them, became a kind of invitation to instant controversy: your grammar says you can't say this, but I said it last Thursday, therefore your grammar is wrong. Once the fun and games side of counterexamples dried up, we began to wonder if the prevalence of counterexamples for nearly any starred form in the literature might not mean that a theory of grammar that rejected starred forms so roundly might not be too rigid. It was about this time, the late sixties, that people began going around muttering things like "All Chomsky grammars are square."

I think that our theory of language has now come to a point where we do not have to tie ourselves in knots on the subject of grammaticality. We have moved to a viewpoint at which, instead of saying, "Because certain lexical elements are specified in such and such a way, it follows that Example X is ungrammatical," we have loosened up to the point where we can say, "Any semantic configuration of a certain type has the following possible forms of surface expression, and other configurations have other forms. We would have expected, judging from the words in Example X, that it belongs to Semantic Configuration A; but since it did not appear in any of the forms that are normal for A, we must suppose that the speaker constructed it in Semantic Configuration B, as he was at liberty to do, and its surface form was therefore appropriate for B." In other words, when we talk about things like the role relationships and role sets of a particular lexical predicate, all we are saying is that most of the time the meaning of the predicate involves those role sets. If a speaker wishes to, however, he can use any role sets that he thinks will get him understood. For example, the predicate that underlies English seem takes an Experiencer, the one who perceives things in a particular way, and a Patient which is itself a sentence-sized proposition. If we construct a thoroughly barbaric, non-English sentence like **why did you seem to me that he would be here by now?*, which has an Agent where no Agent should be, a good grammar does more than slap us on the wrist; it shows that the sentence is unusual, pinpoints the way in which it is unusual, and says in effect, "All right, I know we don't normally treat *seem* as agentive; but if you are determined to do so, then I will admit that you have given it the surface form it ought to have, just as though you had used its conventional counterpart *represent* or the explicit causative *make seem*. Next time, however, you may be better understood if you say *why did you represent to me that he would be here by now?* or *why did you make it seem to me that he would be here by now?*"

Roles that are added to the conventional role set for a predicate without further adjustment can be called supernumerary roles. The Benefactive is the most common supernumerary role. It can be added to almost anything: *the grass is green for me*, *shut the door for me*, *the rain in Spain stays mainly in the plain for them*. Factitives can be added to predicates that normally do not have them: *they walked all out* ('with the result that all their energy was expended'). The notion of supernumerary roles is a special ad hoc case of semantic derivation.

2. PSEUDO-PREDICATES AND CONSOLIDATION

In Chapter 9, where I referred to developmental, agentive, causative, nonagentive, nominal, and instrumental patterns of semantic derivation, I discussed the difference between causative and agentive in considerable detail in order to clarify the Agent role itself. As a result I attempted to justify eliminating Causer as a role separate from Agent. The thought behind both discussions was that there are a small number of semantic relations that can be considered to be predicates themselves, but that are eventually coalesced with the base predicates that they dominate. The causative, for example, has its own Agent and its own Patient, which is a proposition in its own right. The base predicate, the one in the proposition that is Patient of the causative, amy also have its own Agent. When the causative and the base proposition are coalesced, however, as expressed in a transformation of *proposition consolidation* like the one proposed by Frantz (1970), the Agent of the original base predicate is reassigned to another category like Goal or Benefactive.[2] In all further treatment of the coalesced form it behaves as though it represented the semantic role into which it has been moved, so that no problems arise from having two Agents in the same proposition. I believe that proposition consolidation is the mechanism behind Pike's notion of double function (1967), in which he notes that *him* in *I told him to go* is simultaneously an adjunct of *told* and the logical subject of *go*.

Huichol illustrates the effects of consolidation and the resulting role reassignment more readily than English, since in Huichol there are explicit affixes that distinguish between the causative derivation (*-tʌa*) and the agentive derivation (*-ra*) in which an Agent is added to a predicate directly. The Huichol stem *qee* 'carry', for example, normally takes an Agent for the person who does the carrying, a Patient for the thing carried, and a Goal, which can denote either the destination to which the Patient is carried or the direction in which it is carried. In *cʌ́ʌkʌ p-é-i-qei paapáa* (dog assertion-away-3singularobject-carried tortilla) 'the dog carried away a tortilla', *cʌ́ʌkʌ* 'dog' is the Agent, *paapáa* 'tortilla, maize cake' is the Patient, and the Goal is expressed by *e-* 'away'. *Cʌ́ʌkʌ* 'dog' is in cross reference with the third person singular subject of the verb. *Paapáa* 'tortilla' is in cross reference with the third person singular object prefix *i-*. This role set, which is one of several related ones that are appropriate to *qee* 'carry', can be boiled down to a compact representation on the order of *qee* A P G.

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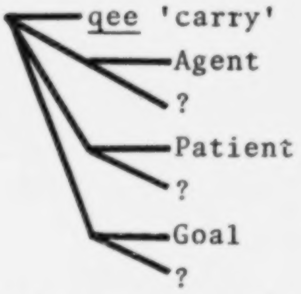
[2] David Cranmer suggests investigating whether roles that are readjusted when they are consolidated are always moved into a role that is not otherwise taken up. If this is not the case, the conflict of roles would result in a special kind of ambiguity which could appropriately be called *consolidation ambiguity*.

Role sets are really abbreviated designations for requirements that each argument of a predicate be a proposition whose predicate is a particular role predicate. The arguments of the role predicates themselves are either referential indices, which we will take up in Chapter 12, or other propositions whose internal structure does not concern us further right now. In other words, the designation *qee* A P G says that propositions of which *qee* is the predicate normally take three arguments; one is a proposition with Agent as its predicate, another is a proposition with Patient as its predicate, and the third is a proposition with Goal as its predicate, without saying anything further about the arguments of those propositions. It is like a skeleton form



where the question marks indicate the places where other propositions may be added.

It is useful to be able to distinguish between the skeleton form of a predicate and the use of that predicate in a particular semantic production in which the blanks that are associated with it are filled in. If *qee* A P G stands for the empty form of the predicate itself, *qee* A P G (a,b,c) is an appropriate way of designating an instance of *qee* in which some proposition *a* is assigned as the argument of the Agent predicate that *qee* dominates, *b* is assigned as the argument of the Patient, and *c* as the argument of the Goal. The arguments are matched in the order in which they are listed, and since it is characteristic of role systems that no predicate has more than one argument of a given type (remembering that an argument that designates a group is a single argument even though it may consist of two or more parts itself; *John and I went to town*, for example, contains a single Agent, *John and I*), there is no problem of duplication.[3] The example given earlier would be represented as *qee* A P G (*cʌ́ʌkʌ*, *paapáa*, *e-*). Because we are not at this point interested in the further propositional structure of the arguments of *qee*, we simply list the forms used, as usual (Langendoen 1969).

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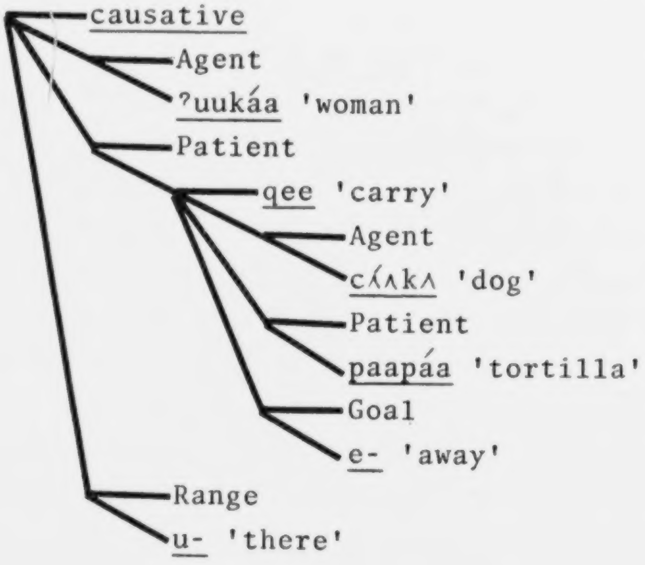
[3] The notation for matching specific values like *a*, *b*, and *c* with variables like A, P, and G is a simplified form of the **lambda notation** proposed thirty years ago by Alonzo Church and modified for the representation of recursive functions by John McCarthy (McCarthy 1960).

Putting the causative together with a predicate like *qee* involves a double level of composition. The dominating proposition has the form *causative* A P R. Its Patient is the proposition *qee* A P G with its own arguments. The composite production has the form *causative* A P R (*ʔuukáa* 'woman', *qee* A P G (*cʌ́ʌkʌ* 'dog', *paapáa* 'tortilla', *e-* 'away'), *u-* 'there'. The second argument of *causative* matches the complete proposition cited earlier with *qee* as its predicate. A tree representation of the causative formation would be



Under most circumstances these two propositions, the one with *causative* as its predicate and the one with *qee* as its predicate, are consolidated into a single proposition. The resulting proposition does not represent the semantic relationships of all its arguments directly; but it is the basis for the surface or output form of the expression that means 'the woman gave the dog a tortilla'.

In the derived proposition the predicate is the semantically complex qéi-tʌa 'cause to carry, give'. The new Agent is the Agent of the original causative. The Patient is the Patient of the original base predicate qee. The original causative (in Huichol, though not in the corresponding English) takes a Range element that tells where the causative Agent performed her action--an internal locative. This element is carried through into the derived proposition; but its surface form u- 'there' is incompatible with the surface form of the Goal of the base proposition, e- 'away'. As a result the original Goal is suppressed.[4]

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[4] E- can cooccur with u- within some words (Grimes 1964). If the sequence e-u- were used here, however, both would be taken as the Range of causative only. The compound locative e-u- conveys the idea of unspecified location, on the order of 'she gives the dog tortillas wherever she happens to be' in contrast with u- by itself, which implies that she was at a specific spot known to the hearer and gave the dog a specific tortilla there. E-u- also contrasts with e- by itself, which implies that she was out of sight of the speaker and hearer when she gave the dog the tortilla. In other words, the Range associated with causative preempts the entire available surface apparatus of locative prefixes, so that the Goal of qee is suppressed. If the Goal were sufficiently important in the staging of the utterance, it would be expressed by repeating the base proposition without the causative: 'the woman gave the dog a tortilla; he carried it away'.

The agent of the original base predicate is no longer treated as an Agent after consolidation. In Huichol it behaves in relation to surface forms exactly as though it were a Benefactive instead. For example, in the presence of a Patient, as in this example, it is expressed as the grammatical direct object, while the Patient is expressed as a syntactic complement that lacks the cross reference that the direct object has to a verbal affix. The consolidated proposition is now *qéi-tʌa* A P R B (*ˀuukáa* 'woman', *paapáa* 'tortilla', *u-* 'there', *cʌ́ʌkʌ* 'dog'). It is spoken as *ˀuukáa* *p-íi+-qéi-tʌa* *paapáa* *cʌ́ʌkʌ* (woman assertion-3 singularobject-carry-cause tortilla dog) 'the woman gave the dog a tortilla'.[5] The tree representation of the proposition (perhaps pseudo-proposition would be a better term) that results from consolidation of *causative* and *qee* is

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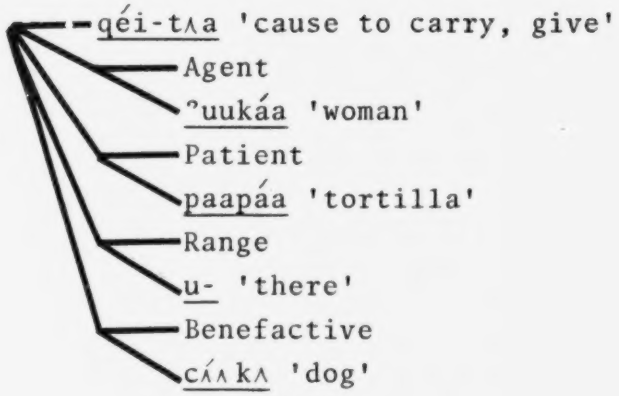
[5] This word order represents normal or unmarked thematization (Chapter 21), with Agent as subject coming first. The *u-* that represents the Range is suppressed in this form due to a positional incompatibility with *i-* 'third singular object'. The *u-* can be recovered either by moving the Benefactive to just before the verb, which eliminates the third person singular object cross reference, or by using a different person or number of Benefactive, which removes the positional incompatibility of the prefixes. In the first case the sentence is *ˀuukáa* *cʌ́ʌkʌ* *p-úu+-qéi-tʌa* *paapáa* 'the woman gave the dog a tortilla', and in the second it is *ˀuukáa* *pʌ-nécí+-ˀu-qéi-tʌa* *paapáa* 'the woman gave me a tortilla'.



The roles listed as Benefactive and Instrument appear to be derivable from abstract predicates by consolidation in the same way as the causative is derived. A likely representation for the predicate that consolidates to give the Benefactive role is something like benefactive A P G where the Agent must be coreferential with the Agent of the base proposition if it has an Agent, the Patient is the base proposition itself, and the Goal is the element that after consolidation occupies the Benefactive role. Instrument appears to have similar form but with different conditions: instrument A P G. The Agent must be coreferential with the Agent of the base proposition. In this case the base proposition must have an Agent. The Patient of instrument, however, is the implement used to carry out the action of the base proposition, and the Goal is the base proposition itself. We could paraphrase benefactive A P G and instrument A P G loosely as 'A does P in such a way as to affect G by it' and 'A uses P in order to accomplish G'.

The general elusiveness of the Range role--the problem of inner versus outer locatives--suggests that setting elements may be capable of being consolidated to give a resultant Range that is not normally part of the semantics of the base predicate involved. _Sleep_ appears to have a semantically optional Range role connected with it that denotes the surface on which one sleeps: _I slept in a comfortable bed and my dog slept on the floor_. In the case of _I slept in New Orleans_, however, the relationships of _New Orleans_ to the rest is not quite like that of _bed_ to the rest: notice the difference in acceptability between _a comfortable bed was what I slept in_ and *_New Orleans was what I slept in_. This suggests that even though the grammatical expression of New Orleans is like that of the normal Range element associated with _sleep_ in the thematically unmarked form of the proposition, the thematic identifying form (Chapter 21) prohibits _New Orleans_ from being treated grammatically like a Range element. Perhaps _in New Orleans_ is really a setting element meaning 'when I was in New Orleans' which is consolidated with the base proposition in the absence of marked thematization. Once consolidated, it is treated in the transformational shaping process like a Range element. If this is so, a good deal of the problem of distinguishing Range (inner locative) from setting (outer locative) can be pinpointed.

Some predicates, the ones I have labeled lexical, have meanings that are explainable at least partly in terms of a few semantic roles. A more precise way to say this is in terms of constraints on arguments: a certain lexical predicate customarily takes, say, three arguments, and one of these is expected to be Agent, another Patient, and still another Instrument.

Still greater precision is desirable in some contexts. In the paragraphs immediately preceding these

I suggested that at the deepest level of semantics Instrument is not a semantic role of the same kind as Agent. In the light of that discussion, a more exact formulation would be to say that a certain lexical predicate customarily takes, say, two arguments, Agent and Patient; in addition it is customarily dominated by an instrumental abstract predicate. Except where some kind of prominence condition blocks ordinary consolidation, this statement implies results equivalent to those of the less formal statement. Since either is translatable into the other, and the occasions on which it is necessary to separate them will not concern us until Chapter 21, I will use whichever form of statement fits the context best.

Role constraints are not the only ones that can be placed on arguments. There are also coreferentiality constraints. For example, the causative predicate, as already mentioned, takes an Agent and a Patient. The Patient itself has as its argument a proposition that contains a lexical predicate, which I referred to earlier as the base predicate. If the base predicate has an Agent, that Agent may or may not refer to the same thing as the Agent of the causative itself. For the instrumental and benefactive abstract predicates, however, the Agent of the base predicate that they dominate must be the same as their own Agent.

Still further constraints are placed on the arguments of some predicates. The requirement that the Patient of a causative be a proposition that contains a lexical predicate is that kind of constraint. It may be a tighter constraint than just that the Patient be lexical; it may exclude (at least in some languages) lexical predicates that have an Essive as one of their arguments. In other words, causative derivations might be able to involve actions in a way that could be translated 'he made her cry', or action-processes like 'he had her write the letter', or processes like 'he made the paint peel', or possibly even states like 'he caused it to be wide' without any implication that it got that way after being some other way first; on the other hand, causatives of nominals like 'he caused the balloon', either in the sense that he caused the balloon to come into existence or that he caused something to take the shape of a balloon, might or might not be possible.[6] The best way to formulate this kind of constraint on arguments is not yet clear. Weinreich's transfer features (1966a, b) may be one way of expressing constraints; Hall (1969) used the notion to talk about semantic roles in Subanon verbs.

3. THE COMPLEXITY OF ARGUMENTS

There seems to be no limit on how complex an argument can be. Each argument is represented in the semantic analysis by a subtree of the total tree.

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[6] The punch line of one Huichol folk tale comes when one dancer tells another dancer whose dancing the first one thinks is crude, *kenéu+tuizútʌa* 'go turn into a pig!', from *túizu* 'pig' and the causative *-tʌa*. He did; and since he was wearing a dark shirt with a white neckerchief, that accounts for the collared peccary. Stems like this one, built from a noun and a causative, may well represent a causative-essive semantics that is not permitted in other languages.

The main requirement that applies to the information content of an argument that belongs to a lexical predicate is this: the hearer must be able to know what the referent of that argument is. In many cases the speaker assumes, either on the grounds of what he has said already or on the grounds of what is present in the situation of speaking, that the hearer knows who or what he is talking about. In this case the argument will be minimally complex, represented by pronominal or zero identification. In other cases its reference must be established, and the speaker must expand the argument to the point where he feels sure the hearer knows what he is talking about (Weizenbaum 1967).

Identification is not the only requirement of speech that bears on the internal complexity of an argument. The hearer may be able to distinguish the thing referred to from everything else in the discourse; but the speaker also has the option of adding to what the hearer knows about it. Description and characterization are well known problems in literary composition; they illustrate the fact that the speaker, in addition to telling what happened, may want the hearer to associate certain attitudes or visual images with the things he distinguishes. The level of detail that is managed here is completely under the speaker's control in the sense that it does not depend merely on the hearer's ability to distinguish one referent from another. The speaker may go to any lengths he likes to build up detail, color, and spice in what he says.

4. CONSTRAINTS NOT RELATED TO ROLES

We have already looked at some of the constraints a predicate imposes on its arguments in terms of semantic roles. There are other constraints as well. A number of predicates expect one of their arguments to refer to a group rather than to a single individual. Collide in English has one role set in which there is a Patient that must be a group. In *the two ships collided* the action is bidirectional, not directed from a particular ship to the other. The sense is equivalent to that of *a collision took place in which two ships were involved*. *Pair* is another predicate that takes a group Patient, with the further requirement that the group consist of neither more nor less than two individuals: *Al and Mary are quite a pair*, *buy me a pair of socks*.[7]

Langendoen (1970.113-115) discusses a kind of requirement on reference that distinguishes between what the speaker thinks to be so and what other people who are mentioned in a discourse believe. He speaks of **referential transparency**, in which the speaker's beliefs about the state of the world hold not only for a particular predicate but for its arguments as well, and **referential opacity**, where the speaker does not have to square his beliefs about the state of the world with those expressed in the arguments: 'referentially opaque contexts basically permit the introduction of the beliefs of different persons: the speaker, the person or persons who play roles in the sentence under consideration, or people in general. Referentially transparent contexts admit only those of the speaker (and also perhaps of people in general).'

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[7] Even though the greatest variety of role patterns is found on predicates in English that ultimately take the surface form of verbs, those that tend to be given other grammatical forms have role sets as well.

It is possible that the concept of embedded performatives may provide a means for incorporating constraints of opacity into a formal grammar. For example, the Patient of *know* must be referentially transparent; it must be so (hence the Kiparskys' use (1971) of *factive* for this relation, in the sense that we cannot know anything that is not a fact). We can say *I know it is snowing* if it is snowing, but we score zero if we are standing in the sun. The Patient of *know* must be consonant with what the state of the world is both from the point of view of the Experiencer of *know* and from the point of view of the speaker. For the referentially opaque *believe*, however, the Experiencer and the speaker may see the world as different. *John knew it was Monday* only if the speaker agrees with John that it was in fact Monday; but if *John believed it was Monday* he and the speaker might still have disagreed about the state of affairs.

For restrictions of another kind, there are certain implications that must hold among the arguments of some predicates in order for them to be considered appropriate. Fillmore (1968) distinguishes a group of **intensional** properties of predicates based on logical relations among their arguments. **Symmetric** predicates like *collide* and *touch* have as part of their meaning the fact that if *a* touches *b*, it is also true that *b* touches *a* and vice versa. **Antisymmetric** predicates include the opposite as part of their meaning: if we say that *a outgrew b*, then it cannot be true that *b outgrew a*. Many predicates are neither symmetric nor antisymmetric; that type of implication is simply irrelevant. Such predicates are called mesosymmetric, and are exemplified by *love*, in the sense that to assert that *Bob loves Susan* is no guarantee either that *Susan loves Bob* or that *Susan does not love Bob*.

Another relation of the same kind among arguments of a predicate is that of reflexivity, but not in the purely grammatical sense that distinguishes *Karen saw herself in the mirror* from *Karen saw her* (somebody other than Karen) *in the mirror*. Predicates that are logically **reflexive** are those for which the possibility of saying them with arguments *a* and *b* implies the further possibility of saying them with arguments *a* and *a*, which may then entail the surface grammatical feature called the reflexive. This is the case with *equals*. We can say *this steak equals that roast in weight*, but we can also say (trivially but truly) *this steak equals itself in weight*. There are also **antireflexive** predicates for which it is not possible to use the same argument in both positions: **3 differs from itself in number* does not hold. Most predicates are **mesoreflexive**; that is, the question of reflexivity does not enter into their meaning. *Bob loves Susan* carries no implications at all about whether *Bob loves himself* or not.

The third intensional relation among arguments that Fillmore mentions is that of transitivity. Again, the term is not used in the ordinary grammatical sense that distinguishes those verbs that take direct objects from those that do not. It is rather used in the logical sense that if *a* is related to *b* and *b* to *c* by a transitive relation, then *a* is related to *c* by the same relation. *Exceed* is **transitive** in this sense; if *your entertainment bill exceeds my salary* and *my salary exceeds the Federal poverty limit*, then it is legitimate to assert that *your entertainment bill exceeds the Federal poverty limit*.[8] Other sentence, namely that the result makes it sound as though there were a Federal poverty limit on entertainment bills, whereas the limit actually has to do with salaries.

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[8] Drawing the conclusion in that way clashes with another kind of restriction on putting things in the same

predicates are **antitransitive**. *Beget* has as part of its meaning in English that if *Abraham begat Isaac* and *Isaac begat Jacob*, the two assertions together would make it impossible to assert that **Abraham begat Jacob*.[9] Other predicates are outside the transitivity scheme; *love* again is **mesotransitive** in that *Jason loves Sandra* and *Sandra loves Xavier* taken together shed only dim light on the possibility of asserting that *Jason loves Xavier*.

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[9] Apparently the verb in Classical Hebrew that is translated as 'beget' in the Bible is not antitransitive. The assumption that it is antitransitive in Hebrew as in English seem to be behind Archbishop Ussher's celebrated chronology.

CHAPTER TWELVE

REFERENTIAL INDICES

In talking about predicates and their arguments we have considered some arguments to be monolithic blobs in the sense that their internal structure does not interest us at the moment. Others we have recognized as propositions whose internal form interests us. Even in the second case, after treating the part we are interested in (as for example, when we point out that one argument of go in the sense of motion must be a proposition whose predicate is the Agent role) we usually disregard the rest. To suggest, however, that the argument of one proposition is another proposition, immediately raises the question whether the chain of propositions within propositions ever comes to an end. We can easily imagine the content of a large discourse to be represented by a large tree composed of propositions; but it must not be an infinitely large tree.

The chain stops when the speaker assumes that the hearer knows what he is talking about.

Compare first the way in which a situation is verbalized when the speaker and hearer have shared many experiences, in contrast with the way complete strangers are able to verbalize the same situation. Husbands and wives typically communicate much in a few words. To speak to one's wife with the same depth of verbal explanation and identification that would be appropriate for a stranger would be either boring or insulting: *Have a good day?* answered by *Schultz called again* might convey the same thing that to a stranger would have to be spelled out--perhaps as follows: *Have a good day?* answered by *I left home and went to work at the apple squeezing factory. Things were going well, but in the middle of the afternoon our former mountain climbing partner Ross N. Schultz, who lives in a suburb of Akron, Ohio, called for the third time to tell us that he was sure he had left twenty yards of braided nylon rope in the trunk of our car, and that he would like us either to hurry up and find it and mail it to him or else pay him for it. Each time he calls he gets more disagreeable about it, with the result that the rest of my day was abnormally tense.*

Consider also the Boy Scout leader who walks into a camp dormitory at 11:30 at night, turns on the lights, and sees pillows all over the floor and the glass of a shattered light bulb, while every eyelid droops in simulated sleep and a hush that is on the point of exploding into twenty nervous giggles fills the room. He does not say, *Who scattered pillows all over the place and broke the light bulb and is pretending now to be asleep?* The only expression that really fits the situation is *All right, who did it?* The situation is already defined in sufficient detail to all concerned that no further verbiage is required.

Communication has many aspects that are like those parlor games in which one person, analogous to the hearer in a speech situation, tries either to identify an object or to pinpoint a situation on the basis of signals from the other players, whose role is analogous to that of the speaker. Suppose the game is one in which the players decide on a certain object which the one who is 'it' has to guess. He comes into the room, and they help him discriminate that object from all others in the room by clapping their hands faster as he gets closer to it and slower as he gets farther away from it. As soon as his discrimination matches theirs, the round is over.

In the same way, as soon as the speaker feels that the hearer's perception of the situation he is talking about matches his own within the limits of acceptability that he sets, he can stop his semantic development; he has reached his objective. If we conceptualized situations in terms of the kind of cognitive map suggested by Kurt Lewin (1936), we would say that the speaker reaches a point where he is willing to assume that the hearer's map of the situation matches his own satisfactorily. This is true whether we are talking about objects, situations, or abstractions that involve whole systems of relationships. For example, there are linguists to whom I can signal a whole set of ideas by the single word *phrase* with a fair assurance that their set of ideas will match mine well enough for us to get on. There are other linguists in whose presence I am not so sure. In conversing with linguists from the second group I tend to bypass the shorthand label and go on to describe the part of the system of ideas I am talking about in enough detail that I can see they understand.

Even monologuists, which includes writers, lecturers, and not a few conversationalists who lose interest in monitoring how well the other person is following them, make certain assumptions about how much they have to tell their audience to get their point across. Each (barring pathology) builds a semantic structure that he feels is appropriate to his audience, and terminates its elaboration when he thinks he is able to get through. He might be wrong.

The assumption on the part of the speaker that what he is trying to say is known adequately to the hearer for the speaker's purposes can now be embodied in linguistics through the notion of the *referential index*. Chomsky (1965.145) proposed the use of such indices to register coreferentiality, the condition in which two parts of a sentence refer to the same thing. Even in proposing it, however, he recognized that it did not fit linguistic theory gracefully. Other scholars have shown how it fails to fit, though nothing better has come along to replace it.

The problem is that even the kind of grammar that claims to account for nothing larger than sentences cannot work right unless something akin to the referential index is embodied in it. Specifically, the difference between *John saw him* and *John saw himself* is tied up with the report that whoever John may be in the speaker's and hearer's systems of reference, the person who was seen in the first instance was not that John, and in the second instance it was.

Since referential indices are part of the system of language, they should not be confused with indices of perception. Nothing is gained by going around pinning numbers on whatever speaker and hearer might each perceive as different in the world around them. That is a problem for psychologists, not for linguists. The referential indices of linguistics have to do only with those judgments about sameness or difference of reference that have repercussions in linguistic form.

For example, whenever in English we have a surface grammatical configuration that involves a subject and an object, we have to know whether the subject and object refer to the same thing or not. If they do, the object is in the *reflexive* form; if they do not, it is in the nonreflexive form. Huichol has a second kind of reflexive in which for any surface grammatical configuration that involves a possessed noun and its possessor, we have to know whether the possessor is the same as the subject of the sentence. If it is, there is a reflexive possessive that must be used; if it is not, the regular possessive is used. The English sentence *John saw his house* is ambiguous regarding the identity of the owner of the house. It could be John's own house or it could be someone else's house. In Huichol, however, there can be no such ambiguity. *wáani yuu-kíi púu+-zéi* 'John saw his (own) house' is kept carefully distinct from *wáani kíi-ya púu+-zéi* 'John saw his (somebody else's house'.

The idea of referential distinctness is not as clear cut as the more obvious examples make it seem. Lakoff (ms) has pointed out how in conjunctive sentences the replacement of one part by *do so* involves conditions of identity of reference similar to those involved in pronominalization. Yet a large class of examples typified by *Tarzan ate a banana and so did Jane* are not coreferential in the strict sense; each person ate a different banana, and for that matter each performed a different act of eating, probably at a different time and place. But what each did was an act of eating, and what each ate was a banana.

In other words, even though we cannot get along without the concept of reference as part of linguistic theory, neither are we able yet to articulate a theory of reference that characterizes the subject adequately. Whatever we come up with eventually, it will have to take into account at least the following observations:

(1) Speakers at times tell hearers explicitly that two or more of the things they are talking about are to be taken as having the same reference. Reflexives are one instance of this. Some equative sentences have a similar effect, as when the detective announces, _This man is the one who killed Colonel Fortescue_.

(2) Sameness of reference is relative, not absolute. _My great-grandfather built his own house and so will I_ are similar enough in reference to permit use of the _do so_ construction, but refer to different houses, acts of building, and times.

(3) The assumption on the part of the speaker that the hearer has in mind a referential picture equivalent to his own, or at least should have such a picture in mind as a result of what he has said, is at the root of the speaker's decision to elaborate his semantic development no further. If we symbolize that semantic development by a tree of propositions, the end of each branch of the tree is either a predicate or a referential index.[1]

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[1] To say that the hearer knows what the speaker is talking about does not imply that all referential indices are definite. The speaker and hearer can be tacitly agreed on the indefiniteness of something as well as on the definiteness of something else. If I ask, _Are there any unicorns grazing in front of your house now?_ and you answer _No_, we have agreed on the identity of you and me, your house, and the space around it, and also on the capacity of both of us

to recognize a unicorn should one appear. But neither of us has committed himself to reference to any particular unicorn, or even that there are such things.

All that has been said about reference so far applies primarily to reference to individuals. Yet, as already mentioned in Chapter 3.2, reference to individuals seems to be fairly straightforward, even though we do not yet know all the rules of the game. When we make reference to groups, however, things are anything but straightforward. We have groups in which no individuals stand out, as in *the Goths sacked Rome*. There are groups defined by relation to a single individual in them, yet treated as groups, as in *the court went to Windsor for the season*. There are still other groups in which the defining individual is separate from the rest of the group in some instances and merged with the group in others: *The chairman reminded us that we had a three o'clock deadline. So we all buckled down and finished the plans*. The second sentence includes the chairman in the group; the first does not. Other groups are weakly constituted; they consist of individuals for most of the reference of the discourse, but the individuals are sometimes put together under a cover label: *The contenders fell apart and retired to their corners*. Other groups are indeterminate, like the conventional *they* of *they say this summer will be hot*, or the predefined *they* of some languages in which *they were fishing* in the absence of any other defining information means 'all the members of our tribe were fishing'.

Two patterns of reference are peculiar to groups. **Reciprocal** reference implies a group split into two parts, say A and B. Whatever action is involved, reciprocal forms tell the hearer that there are some members of A (possibly all) directing the action at members of B, and at the same time some members of B directing the same action at members of A, as in *the armies charged at each other*. **Respective** reference, on the other hand, matches the members of one group to the members of another group ordinally. The sentence *Al and George took their girl friends to Disneyland and Knott's Berry Farm respectively* matches Al with his girl friend and Disneyland and matches George with his girl friend and Knott's Berry Farm.

The time indices mentioned in 3.2 and 20.5 are a specialized kind of referential indices. Different points in time may or may not be distinct within the particular topology imposed on the time line by a discourse.

CHAPTER THIRTEEN

THE GRAMMAR OF SEMANTIC PRODUCTIONS

The kind of semantic development I have talked about in the preceding chapters can be represented by a tree. The infinite family of trees that can serve to characterize semantic productions can be characterized much more simply than, say, the syntactic trees of Chomsky (1965 or even 1970). These characterizations are satisfactory for any scale of magnitude from sentence to discourse.

1. FORMATION

The semantic grammar of propositions takes as its starting point an initial symbol *F* for 'form', representing a proposition and one rewrite rule that replaces *F* by one or more predicates *p* together with zero or more arguments *A*. The asterisk stands for a string of any number of elements greater than or equal to the subscript beneath it. This is the **Predicate Rule**:

$$F \longrightarrow P^{*}_{1}\ A^{*}_{0}$$

The symbol *A* for the arguments is actually a dummy or intermediate symbol. It stands for either another form *F* to represent a proposition acting as an argument, for a referential index that terminates the recursion, or for an indexed proposition. The **Argument Rule** has the form

$$A \longrightarrow (F \mid i)$$

where the linked parentheses (Fillmore 1968.28) indicate that either element may appear alone or both may appear together, and i stands for any referential index. The Argument Rule is thus a conflation of three rules, A → F, A → i, and A → F i, just as the Predicate Rule is a conflation of a presumably limitless number of rules, F → P, F → P A, F → P A A, F → P P, F → P P A, ...

As a formal grammar this fits the standard definition G = (N, T, S, P); that is, the grammar G is a 4-tuple that consists of a set N of nonterminal symbols, a set T of terminal symbols that do not overlap with N (or in set terms, $N \cap T = \emptyset$), a distinguished symbol S that is in N, and a set of productions P by which the distinguished or starting symbol S is related to all possible strings of terminal symbols.[1] In the formation of propositions the nonterminal symbols are F and A, propositions and arguments. The terminal symbols are p, which stands for any predicate, and i, which stands for any referential index. F is distinguished as the starting symbol. The productions P are defined by the Predicate Rule and the Argument Rule.

Practically speaking the strings of predicates and referential indices that are the output of this grammar are of little direct interest. We are more interested in the phrase markers implied by the grammar; that is, in the tree that represents the structure or derivational history of a semantic production by telling what arguments are associated with what predicates. This is a two-dimensional representation of the semantic relationships that are implied by the grammar. Strictly speaking it is redundant because in every case it can be recovered from the string that the formal grammar implies; but for the most part we leave the strings aside and talk instead about the corresponding phrase markers.[2]

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[1] See for example the first footnote of Griebach 1969, which is equivalent though phrased in a slightly different way.

This grammar of propositions is recursive in form; one of its symbols, F, appears both as a symbol to be rewritten in the Predicate Rule and as one of the symbols that may be used to rewrite another symbol in the Argument Rule. Because of this property there is no limit to the size of trees that are implied by it, even if we were to limit the number of arguments that could be associated with any predicate in the Predicate Rule.[3]

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[2] Most linguists have an intuitive grasp of structural relations as presented in two dimensions, and object to having to extract structural information from string representations. Mathematicians who work with language and language-like systems, on the other hand, tend to think in terms of grammars and strings and to regard derivational history as logical excess baggage. Linguists who are interested in bridging this gap may find the game of Queries 'n Theories (Allen et al. 1970) useful.

[3] The predicates I characterized as lexical in Chapter 8 normally take no more than five or six arguments: climb A P G R B as in the questionable they climbed the supplies across the cliff for me, with supernumerary P and B, is about as complicated as things get. When we consider

the rhetorical predicates of Chapter 14, however, it will become apparent that a relation like *and* has absolutely no limit on the number of arguments it can take.

Our use of pronominalization patterns suggests that we treat entire subtrees composed of propositions as indexable entities: *They had to dive from the dock and swim under the hull before the ship's propellors were stopped. When I thought about it later I broke out in a sweat.* The *it* of the second sentence refers to the entire complex of events together with the background circumstance that the ship's propellors were still turning. The referential index is associated with that subtree as a whole rather than with a single component of it. The Argument Rule employs linked parentheses to indicate the option of indexing an entire proposition as well as having the proposition or the index by itself.[4]

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[4] Another possibility would be to index every proposition whether the indexing is made use of or not. This would give the Argument Rule the form A → (F) i.

Chapter 10.2 implies that each language has a stock of predicates that are available to be fitted together according to the Predicate Rule. Together they constitute the **semantic lexicon**. Several possible predicates of English have been mentioned, each with one or more sets of constraints on what kinds of propositions they can take as arguments: *cause* A P, *hit* (A)(I) R, where the linked parentheses constitute a condensed notation for distinct sets of arguments, *bend* ({(A)(I) | C}) P F, and so forth. Each role set is associated with particular areas of meaning of the predicate. If the predicate is used with some role set other than the ones registered in the lexicon as the conventional ones, we can still predict that the nonconventional role set will be recognized and reacted to as strange or innovative. We can also predict that if it is understood at all, it will be understood in terms of the general meanings of the roles that are used.

Predicates have many other properties besides their conventional cooccurrence with certain roles. Many predicates can probably be decomposed into semantic components. All have associative and other ties to other predicates as was described in Chapter 10. All these other properties could, however, be considered as conditions that govern the appropriateness of selecting a particular predicate for a particular situation. The grammar of propositions that I have given puts certain limits on the ways in which predicates can be linked to each other. Any assemblage of propositions that is put together by the Predicate Rule and the Argument Rule is capable of being processed into speech; but the grammar lays down no further restrictions on what can be put together. As far as the possibility of predicates being assembled into propositions and communicated is concerned, the grammar does not hinder us from bringing together the prosaic with the outlandish, the appropriate with the wildly inappropriate, truth with falsehood, and sense with nonsense if we wish to. Whether we construct utterances according to other canons of appropriateness is a matter of prudence, not grammar. There is so much evidence that language is not used only to inquire, to inform, or command, but also to befuddle, mislead, or simply fill up time without saying anything, that a theory of language that could not comprehend these uses as well along with the more prosaic ones would be unrealistic.

Not only must a theory of grammar allow for violation of counsels of prudence and for failure to make sense; it must leave room for verbal play. Consider the poets who would have to go on welfare if they were required to obey the dicta laid down by grammarians. The soul of a good deal of poetry is in the bending of ordinary semantics to just this side, or in some case just the other side, of the bounds of conventional semantics. Sometimes what the poet bends stays bent; when the Hebrew poet 'escaped by the skin of his teeth' (*Job* 19:20) he set up a deformation in the meaning of the word for 'skin' that has endured for millenia.

The grammar of semantic productions implies phrase markers, as already mentioned. The representation of trees that is most generally familiar to linguists is the kind used by Chomsky (1957) to depict phrase markers in his syntax-centered grammar. Chomsky's trees have their roots toward the top center of the page, or in the north. A *north-oriented* tree representation of the phrase marker that underlies the Huichol example of Chapter 11.2 would look like this:[5]

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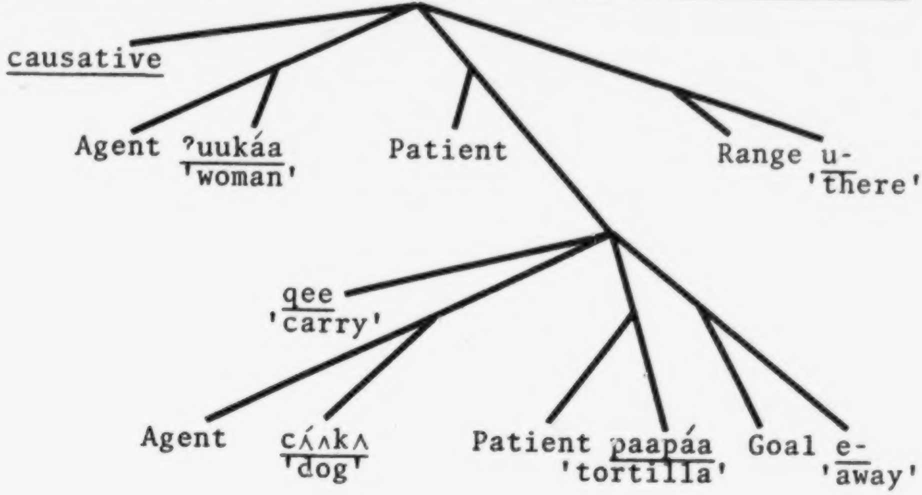
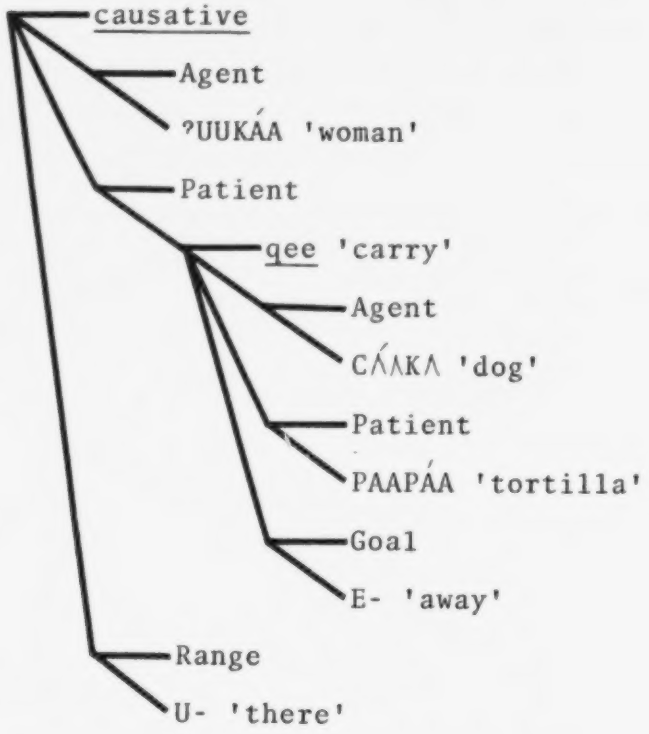
[5] In this phrase marker and the equivalent ones to follow I have not gone further into the semantic structure of the words for 'woman', 'dog', or 'tortilla', or the prefixes 'there' and 'away'. Each of these is ultimately represented by a development of its own that terminates in a referential index to indicate the speaker's judgment that the hearer has established an equivalent reference. The

subtree corresponding to each of these forms develops along lines such as those suggested by Langendoen (1969). Triangles in this tree and capital letters in the ones that follow indicate incomplete representation of derivations.


causative
Agent
ʔuukáa
'woman'
Patient
Range
u-
'there'
qee
'carry'
Agent
cʌ́ʌkʌ
'dog'
Patient
paapáa
'tortilla'
Goal
e-
'away'

This representation is difficult to type or to set in type, therefore also expensive. Even though it is the one most linguists know, in this book I have shifted to the fully equivalent form of phrase marker representation used by Frantz (1970), in which the root is at the top left or northwest. This is reasonably simple to type. A *northwest-oriented* tree representation of the same phrase marker is identical with the representation used in Chapter 11:


causative
Agent
ʔUUKÁA 'woman'
Patient
qee 'carry'
Agent
CɅ́ɅKɅ 'dog'
Patient
PAAPÁA 'tortilla'
Goal
E- 'away'
Range
U- 'there'

Linear representations of phrase markers are also possible. They are ones that can be written out on a line instead of in two dimensions, but that still give the correct grouping of elements through parenthesization. In Chapter 11, for example, I introduced a notation that distinguished the form of elements in the semantic lexicon from the assignment of values to each variable in that form. This *assignment representation* of a phrase marker represents a proposition by its predicate, its role set, and an assignment list that tells what argument corresponds to each role in the role set. The assignment representation of the same phrase marker was also given in Chapter 11:

> *causative* A P R (ʔUUKÁA, *qee* A P G (CɅ́ɅKɅ, PAAPÁA, E-), U-)

A *fully parenthesized representation* of the same phrase marker would simply move the elements out of the assignment list of an assignment representation and group each of them with its appropriate role symbol. A matching pair of parentheses therefore corresponds to a level in the north-oriented tree or a tabulator stop in the northwest-oriented tree:

causative (Agent ˀUUKÁA) (Patient (*qee*
(Agent CɅ́ɅKɅ) (Patient PAAPÁA) (Goal E-))
(Range U-)

The important thing to remember is that all four of these representations of phrase markers are completely equivalent. There is no information about either content or organization in one that is not in each of the others. Still other representations of the same information are of course possible; one notes the south-oriented trees used to depict evolutionary sequences (even though specific genealogies are by tradition north-oriented). For linguistics, however, the four forms I have listed are more than enough.

2. TRANSFORMATION

Obviously the phrase markers that are implied by the formational grammar do not account directly for actual speech forms. None of the illustrations given in the last section suggests directly that what a Huichol says is *?uukáa píi+qéitʌa paapáa cʌ́ʌkʌ* 'the woman gave the dog a tortilla'. Why, then, bother writing a grammar in this way if it generates things that correspond to speech only loosely?

The formational grammar of Section 1 is a grammar that controls certain relationships and no others. It deals with predicates and their arguments and relates them in a tree structure. In doing this it aids us in noticing certain patterns or generalizations that we recognize as part of language. We see that things like *the boy swept the porch with a broom* shares a good deal of its meaning with *the boy swept the porch*, *the broom swept the porch*, *the sweeping of the porch*, *the sweeping of the broom*, *the sweeping of the boy*, *the action of the broom*, and other expressions that differ from each other semantically, but not much. Insofar as their meanings can be related, we want a consistent way of making that relationship clear. This we do by comparing their semantic **underlying representations** rather than by comparing their grammatical and phonological **surface representations**. The surface representations, on the other hand, can be compared with each other to show a different kind of relatedness--the relatedness of *Max kissed Susan* with *the last one to leave pays the bill*, or of *leave the dishes and we'll go to the game* with *build a better mousetrap and the world will beat a path to your door*, where it is hardly any kind of semantic relatedness that is in focus.

The task of linguistics is not to prove either that surface representations are all that there is to language or that underlying representations are the whole story. The best linguistics now gives us three kinds of information about language: (1) what the surface representations of utterances are like, (2) what the underlying representations of utterances are like, and (3) how the two match each other. The relation, or **transformation**, is generally taken today as a mapping from the set of possible underlying representations onto the set of possible surface representations.[6]

In order for the transformational part of language to operate it must presuppose not only the content structure that the formational grammar exemplified in Section One of this chapter provides; it must also take into account the situation in which speech is taking place, everything that has been said up to that point, and everything that the speaker assumes that the hearer already knows. This cohesion component, discussed in Chapter 19, influences the way the content is organized for presentation.[7] Thematic or staging decisions, which include the speaker's decisions about the way in which the things he says are to be brought before the speaker (Chapter 21) and the relative prominence he assigns to different parts of the content structure, are a third major kind of input to the transformational component. How the transformational component welds together the results of the speaker's content, cohesion, and staging decisions is only poorly understood, since most work in the area of transformations has concentrated on cognitive underlying structures and only tentatively reached out toward the others.

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[6] The inverse mapping from surface representations to underlying representations appears to be farther from our reach at present. Sydney Lamb, for example, had hoped that his stratificational model of grammar would provide a decoding mode that used the same network of relationships as was used to express the encoding or meaning-to-sound mode (1966). The viable fragments of grammars that I have seen written in that model, however, turn out to be unidirectional. If, as is sometimes suggested, we understand speech by producing our own analog of what we think the other person is saying, the inverse mapping would not be needed at all to account for that kind of linguistic behavior. If on the other hand we also operate in a decoding mode at times, then the inverse of a grammar is a problem that merits a good deal of study.

[7] Cohesion is not synonymous with Chomsky's performance (1965). It appears to be capable of being presented formally even though it is time dependent to a certain extent.

The transformational component could be thought of as the means of sorting out the consequences of the speaker's decisions for expression in speech. It channels information into surface forms that are tightly constrained and therefore are appropriate vehicles of communication.

As a result of the transformational process, speech takes on a form that can be partitioned into constituents that stand in conventionally recognized arrangements relative to each other in time. The process of doing this sometimes assigns the same surface form to more than one semantic configuration. *Ambiguity* is the result; as far as we know, all natural languages have some ambiguous surface forms. The presence of ambiguity in language is by itself sufficient reason for distinguishing underlying structure from surface structure, in that underlying structure permits us to specify the nature of ambiguities in a way that we could not do by reference only to the ambiguous forms themselves.

In addition, the transformational process often results in a considerable amount of information being communicated more than once. Consider, for example, the **redundancy** of the subject and the verb ending in English *he drives a truck*, where *he* and the *-s* ending in *drives* both communicate that the subject is singular and third person. We do not want to assume that the choice that gives rise to *he* and the choice that gives rise to *-s* are really independent of each other. Copying transformations of the kind commonly used to express agreement permit us to recognize the multiple expressions of a single choice.

Finally, transformation results in a definite **ordering** in time of the expressions of all the surface elements. This ordering is not a necessary characteristic of the underlying semantics, but rather an accomodation to the time dependent way in which the vocal tract operates (Chafe 1967).

All that I have said about the transformational process in this section is programmatic and unsupported here by examples. Nevertheless, a transformational grammar is a compelling consequence of the decision to shape linguistic theory by distinguishing fundamentally between choice and implementation. There are plenty of examples in the current linguistic literature of transformations that relate underlying structure with surface structure if we are willing to confine ourselves to single sentences. In my own work I have not yet tackled the problem of writing down the explicit relationships between deep and surface forms when more than sentences are involved; occupied with the underlying structures themselves, I have simply assumed that this can be done as an extension of sentence-based transformation theory. Frantz's work on Blackfoot (1970) includes explicit transformations that operate on an underlying structure whose form agrees with the phrase markers that I generate by the Predicate Rule and the Argument Rule of Section One. Quillian's semantic memory model (1968) has a rudimentary transformational component that puts out information into more than one sentence when the quantity of information in a semantic network is too much for the available surface structure to convey. Although this has the intriguing consequence of making the sentence a performance notion, rather than the basic unit of linguistic competence as Chomsky assumed in making that questionable distinction in the first place (1965), it indicates the direction that transformational studies can most profitably take.

3. SPECIAL MAPPINGS

The formational grammar of semantic productions given in Section One is exceedingly simple, maybe even too simple. Yet it allows the relationships that seem to be important in discourse to be expressed.

Additional complexity enters the picture in two distinct ways. The first is in the nature of the elements I have called predicates. Undoubtedly they should not be taken as simple terminal symbols as I have taken them here--ultimate elements in a theory of semantics. They probably do have some kind of internal structure of their own that is not accounted for satisfactorily by providing them with associative and other relationships to other predicates. For the present, however, I leave the composition of predicates to one side. It does not appear to affect our understanding of the structure of discourse, though it is important for our total understanding of language.

A further clarification is needed to head off possible false impressions. The formational grammar of propositions given in Section One is clear cut and definite. It purports to model the organization of meaning in language at a deep or primitive level. As a model its depth is only relative, and there may well be a structure that we do not yet see standing behind that structure. All that the formational grammar claims is that the representation of underlying structure it provides is adequate for saying what I want to say about discourse. Even there, as should be clear from Chapter Nine, phenomena like the Instrumental and Benefactive roles can be formulated in distinct ways, each of which fits the formational grammar, but one of which possibly represents the result of the application of a consolidation transformation and hence is not as far removed from the surface form itself as the other formulation is. Deep structure, then, is relative to what we are trying to express by it.

The nature of the transformational component as I see it differs somewhat from the way Chomsky presented it. The kinds of constraints I will list are appropriate to a Chomsky grammar; if they were applied to it they could result in an artifact more appropriate to the subject matter.

The principal constraint has to do with the way in which transformations are ordered. Possibly because of the fact that grammars are written on paper, it seems to have become customary to think of the ordering of transformations (and of phrase structure rules for that matter) as fixed in a strict order. The ordering is, however, a partial ordering rather than a strict ordering. In other words, a particular transformation does not necessarily have one and only one other transformation as its predecessor. Instead it has as its predecessors all rules, whether formational or transformational, that provide an output that is recognized by its structure index.[8] It has as its successors all rules whose structure indexes recognize the trees that it puts out. While this principle of partial rather than strict ordering has actually been implicit in all formal definitions of rule systems, it seems to have been lost sight of in practice.

The most notable point at which the ordering of transformational rules has been done without reference to the connectivity relations[9] that are implicit in the rules themselves is in the distinction between a grammatical transformational component of grammar and a phonological component. I take this to be a piece of crypto-Bloomfieldian linguistics, in that there is no necessary discontinuity between grammar and phonology in a transformational grammar. Some rules recognize or introduce nonphonological features, others phonological features, others both. Possibly the sharp difference between sound and grammar has been informally carried over into formal grammar because it is useful and reflects something fundamental about language. What the detailed analysis of partial orderings in rule systems is likely to show us is the interpenetration of grammar and phonology; but the line between them has to be looked for elsewhere.[10]

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[8] For the technical concepts of transformational grammar the reader is referred to standard works: Bach 1964, Hale 1965, Chomsky 1965.

[9] Connectivity relations are those that are derived in the case of transformational grammar from predecessor-successor or tree producing-tree recognizing relations between pairs of rules. Their use in the analysis of affix systems, which also involve partial ordering, is discussed in Grimes 1967, which can be applied to rules with almost no change. See B. Kroeker 1972.

What I expect to see by the time we have looked closely at complete transformational systems that include phonology is that some phonological rules (rules that either recognize or add or change phonological information, regardless of what else there may be in the rule) presuppose nothing about the output of any of the nonphonological transformations. Some of the rules that impose meter or assonance, for example, might even recognize the output of the formational grammar directly. Naturally a great many rules that deal with phonology are ordered late; but the point is that this ordering should express a fact about language rather than an arbitrary partitioning of the conceptual apparatus used to talk about language. It seems reasonable, furthermore, to treat the part of the grammar that provides explicit phonological underlying forms as a set of transformations with highly specific structure indices that usually involve particular semantic predicates. Chafe (1968) has shown that rules of this kind, which we could call *symbolization* rules, have to come after the part of the grammar that adjusts idioms. Most of the phonological rules in the usual sense follow the symbolization rules.

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[10] It is sometimes pointed out that phonological rules have the form of context sensitive rewrite rules that operate on strings, while transformations operate on trees. Since, however, any string can be mapped onto a tree in which each element of the string corresponds to a daughter node and all daughter nodes go to one parent node, there is no particular justification for using context sensitive rules for phonology to the exclusion of transformations. Furthermore, Chomsky and Halle (1968) use context sensitive rules whose context part contains a good deal of structural information in the form of labelled brackets, implying structures or trees considerably more complex than those that correspond to simple strings.

In the entire transformational system there are widely varying degrees of generality with which rules apply. The least general rules tend to be the ones that express irregularities. The most general ones express what we call regularities, but there is no clear dividing line between the two. Lakoff (1965) and others have discussed irregularity and specific irregularities in considerable detail. Certain kinds of irregularities are of special interest in the framework of propositional grammar.

Transformations match underlying semantic configurations with utterances. For each kind of predicate in a semantic representation, the roles that are associated with it match surface phenomena in specific ways.

Some role elements are obligatorily represented in the corresponding surface forms. Others may be deleted under some conditions even though there is evidence that they are present in the underlying semantics. A deleted role element, however, is not the same as a role element that is not there in the first place.

Some role elements are always represented in the surface form. In Huichol, for example, any predicate that takes an Agent normally has that Agent represented in the surface form by something--at the very least, by a subject pronoun prefix. If in the process of consolidation with a causative (11.2) an underlying Agent is shifted into a different role such as Benefactive, then the representation rules for Benefactive apply to it instead. (Such shifting of roles is done only when something else is being brought in as Agent.) The original is still represented in the surface form, though not in the way most Agents are represented.

As has already been pointed out, role elements may be deleted if they are redundant in terms of the previous context, or obvious from the situation of speaking, or conventional in terms of standard cultural expectations. A question about the missing role element will often elicit an answer that contains a certain amount of pique; the person who asked it should have known better. He should have been able to decipher it by rules of anaphora, or should have seen what the speaker was pointing at, or should have known what everybody knows who is in that situation.

In other cases the speaker does not know or does not wish to tell what a particular role element is. In this case a question about the missing role element elicits a definite answer. The answer may be of the 'I don't know' variety, or it may give out information grudgingly that was supposed to be kept a secret. In English the passive allows the Agent to be dropped in cases where filling it in might prove embarrassing: *A: The folder was left on the desk, apparently. B: Who left it there? A: Well, if you really must know, I did.*

Where a role is not a part of the semantics at all, rather than being deleted under the usual conditions, the reaction to a question about it is uniformly one of puzzlement: *A: I ran a mile and a half this morning. B: What did you run a mile and a half this morning? A: Huh?* In this example B has taken the sense of *run* that includes a machine as Patient, as in *we ran the boat across the lake*, while A began with the sense of *run* as a physical activity that includes no Patient. The lack of communication highlights the inappropriateness of a Patient in the only sense that A has in mind. In other words, there is nothing in A's semantics that could be construed as a Patient, so that there is no deletion to be recovered under any circumstances.

Analysis of data in terms of role systems involves keeping three things clearly separated: (1) underlying representations, (2) surface representations, and (3) the mappings between them. Practical difficulty always seems to result from trying to combine any two of the three.

An example of the necessity for keeping mappings themselves distinct from both underlying and surface forms is found in the referent assignment rules for Mamanwa of the Philippines. Jeanne Miller (ms) describes Mamanwa clauses in terms of the usual verb adjuncts of Philippine languages: subject, object, referent, and accessory. In terms of the semantics of verbs, however, each adjunct type is systematically related to several different underlying cases.

For example, the referent is assigned as follows. There are *direction* predicates that take an Agent together with either a Goal, a Range, or a Source, depending upon the meaning of the verb. Agent matches subject; Goal, Range, or Source match referent. The sentence *ambalik hao dini* meaning 'I will return here' has the Goal as referent; *ampanik hao ka nizeg* 'I will climb the coconut tree' has Range as referent; *ampanaw di hao* 'I will leave here' has Source as referent.

Action process predicates take Agent matched with subject, Patient matched with object, Range matched with referent, and Instrument matched with accessory. No action process predicate takes all four adjuncts. *anhinang hao ka lagkaw* 'I will watch the child' has 'child' as Range and referent; *ibalabag o ining kaban dizan kining pirtahan* 'will bar the door with this chest' has 'chest' as Range and referent. (Patient with an action process predicate is changed or acted upon directly; Range is not. 'I will build a house' and 'I will cut down a banana tree' contain Patient as object, not Range.)

Conveyance predicates have an Agent-Source matched with subject, Patient matched with accessory, and Goal matched with referent: *ambaligzà hao ka makaen kan Mariya* 'I will sell the food to Mary' has 'Mary' as referent. Many conveyance predicates have directional counterparts with a different role set; they often include in their meaning that the Agent moves along with the Patient, while with other conveyance predicates such as 'sell' the Patient may separate from the Agent as a result of the action. *iolì nao ining baskit doro kan Robirto* 'I will return this basket to Roberto' has 'Roberto' as Goal and referent, and implies that the Agent and the Patient do not separate. It differs in its role set from the directional 'I will return here'.

Acquisition predicates have an Agent-Goal matched with subject, Patient matched with object, and Source matched with referent: *paliten o ya bozag doro kan Noay* 'I will buy potatoes from Noay' has 'Noay' as Source, expressed by referent. Here the Patient is not changed by the action. Instead, treating something as Patient with an acquisition predicate frequently implies that it is being acquired as a whole, whereas treating the same thing as Source implies an area or field out of which the Patient is acquired: *hinangen o ya banig* with *ya banig* 'mat' as object means 'I will make the mat', implying all of it; *hinangan o ya banig* with *ya banig* as referent (shown by the verbal inflection) means 'I will make part of the mat'. This whole-part relationship expressed by Patient as over against Source or Range is much more clear cut in other languages of the Philippines than in Mamanwa.

Experiencer predicates appear to have idiosyncratic mappings to surface structure. Experiencer matches subject; but Noninstigative Cause matches object, referent, or accessory depending upon the particular predicate. In *masakiten si Ilina ka biribiri* "Beriberi is making Ilena sick', the Noninstigative Cause 'beriberi' (a deficiency disease) is object; but in *nabalikan nami ya bilanat* 'we have fever again' the Noninstigative Cause 'fever' is referent.

In these ways the semantic roles of Mamanwa are combined with different predicates, and the results fall into eight definable clause patterns. The key to Mamanwa grammar is the ability to keep track of the different ways in which roles match surface categories.

In English the ways in which this matching is accomplished seem to depend more on what individual roles are present and being expressed than they do on the complete complex of roles that is there and the meaning of the predicates themselves, as is the case in Mamanwa. I have already mentioned the general rule for subject assignment. As Chafe formulates it (1970b.244), if there is an Agent or Experiencer, it is subject as in *I saw the President*; if not, the Benefactive (or possibly the Goal) is subject as in *I was given the best seat*; if none of those are present, the Patient is subject as in *I was tired*. The choice of a passive form of expression removes Agent and Experiencer from the running for this rule, with the result that Benefactive or Patient match the subject even in the presence of an Agent or Experiencer as in *I was given the best seat by the manager*. Several refinements on the rule as Chafe gives it come to mind: Instrument is probably ranked before Benefactive, and certainly before Patient in the running for subject, as in *this key will open every door for you*; Range is ranked after Patient as in *sword clanged against shield*; and in the absence of any viable candidate for subject, a dummy subject is inserted, as in *it seems to be snowing*.

I suspect that there are actually two factors involved in English subject assignment, but the details have yet to be fitted into place. The first factor is a ranking of roles in terms of priorities for subject assignment. This ranking, however, is probably a partial ordering that allows two or more roles to tie for subject position. The second factor breaks the tie; it is related to the thematic properties by which the relationship among the roles is staged for the hearer's benefit. In *this necktie (P) was given me (G) by my wife (AS)* vs. *I (G) was given this necktie (P) by my wife (AS)*, I suspect that neither Patient nor Goal outranks the other in the general plan of subject assignment, but rather that the choice is made on grounds of staging: in one case the speaker is talking about the necktie, and in the other about what happened to him.

Both Mamanwa and English illustrate an important point about deep-to-surface mappings: they are not simple. One could think of the mapping relation as having a job like that of the traffic officer in the parking lot at a championship football game. There are only so many places that can be filled; yet cars of all sizes and shapes and degrees of maneuverability come in from all directions and have to be accomodated somehow. The surface patterns of language likewise provide a limited number of places for information that comes in a wide variety. The process of accomodating each kind of information into surface constructions thus requires routings as complex as the gyrations of the man in the blue coat as he tries to get all the cars to pack in without jamming or wrinkling fenders.

As if that were not enough, individual predicates may have special properties that require them to be matched to surface structure in a particular way. Certain ones may also be prohibited from going into surface structure in the same way that most of the predicates that share their other properties are permitted to fit. The English predicate that underlies the word *seem*, for example, must undergo the process known as *extraposition* (Jacobs and Rosenbaum 1968.171-178) before it can appear in a surface form. The semantically similar form *is likely*, on the other hand, may or may not undergo extraposition, depending probably on thematic choices. Thus we have the extraposed forms *it seems that he came* and *it is likely that he came*, but only *that he came is likely* as the non-extraposed counterpart.

CHAPTER FOURTEEN

RHETORICAL STRUCTURE

In Chapters 8 through 13 we considered the part of language within which a small number of semantic roles play an important part. Role-related underlying structure, or *lexical* structure, however, accounts for only part of language. Now we turn to the remaining propositions that are represented in underlying structure--in other words, to those propositions whose predicates do not involve specifications on roles that must be present in their arguments.

Propositions whose arguments are not related to their predicates via semantic roles are called *rhetorical* propositions. The predicates in them are called rhetorical predicates. Their main function could be thought of as that of organizing the content of discourse. They join lexical propositions together, and they join other rhetorical propositions together. In a tree that represents the underlying structure of a discourse (Chapter 13), most of the propositions near the root are likely to be rhetorical, while most of the propositions near the leaves are likely to be lexical. Nevertheless, some rhetorical propositions may be dominated by lexical propositions: *we just realized that either we will have to leave home before six or they will have to postpone the meeting*, for example, contains a lexical predicate *realize* that dominates the alternative predicate symbolized by *either ... or*. In general, however, the tendency is for lexical predicates to be found in the more finely partitioned, terminal part of a derivation, and the rhetorical predicates in the upper reaches.[1] The relationship exemplified in *although we were nearly out of milk, the children didn't complain*, in which *although* relates the two clauses as adversatives, is more typical of the standard arrangement in which rhetorical propositions dominate lexical ones.

Fuller's *The inductive method of Bible study* (1959) was the first attempt to come to my knowledge in which interestingly large sections of text were grouped according to a small number of explicit organizing relations. The well established tradition of **outlining** gives similar groupings of elements within a text; but rarely is the outliner moved to be explicit about the kinds of coordination and subordination upon which his outline is based. Fuller's analysis of a text, however, gives groupings that are equivalent to an outline, then goes on to include the semantic basis for each grouping.

Fuller's relationships between propositions correspond rather closely to the ones I list later in this chapter, though there are cases where some of his relationships can be combined on the grounds that the differences between them are attributable to differences in their arguments or to staging differences. He distinguishes two kinds, logically parallel to the grammatical notions of coordinate and subordinate. Logical relationships that involve 'equality of class' include series, progression, and alternatives. Those that involve 'equality by support' include negative-positive, general-specific, fact-interpretation, way-end, and comparison. They are in the category of restatements. There are other supporting relationships as well that involve assertions distinct from the ones they support rather than being restatements: ground, inference, cause-effect, fact-illustration, means-end, and setting-happening. Still other supporting relationships may contain contrary elements: adversative, question-answer, and situation-response.

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[1] Strictly speaking, the role predicates are themselves rhetorical, since they embody no constraints on the role composition of their arguments. They can still be cut out as a separate class, however, by the fact that they are always dominated by lexical predicates, whereas rhetorical predicates in the ordinary sense are not so restricted.

A group headed up by John Beekman have been exchanging papers on Bible translation that take Fuller's work together with Fillmore's case grammar as their common point of departure. These include propositional analyses of entire books of the Bible. The results of their work are to be published in a book by Beekman that should be an important contribution to discourse theory.

Longacre has investigated abstract relationships that have domains beyond the sentence (Ballard, Conrad, and Longacre 1971). His list of what I am calling rhetorical relationships is similar to Fuller's. He makes the interesting point that the minimal expression of most of these relationships is normally the sentence, whereas the minimal expression of the relationships that enter into lexical propositions is normally the clause. Even though it is possible to find rhetorical relations embedded deeply within clauses (*let's have no more of your neither-here-nor-there observations*) and to find role relationships spread out over several sentences (The stone fell. It hit the ground. Zog had made it happen. He used a tree trunk.), this kind of observation is important in that it establishes regularities of mapping between underlying and surface structure, and thereby makes it possible to look for conditions (possibly related to staging in the first example and to rate of information transmission in the second) under which the ordinary mappings are overridden.

1. PARATACTIC PREDICATES

Rhetorical predicates divide into three kinds: paratactic, hypotactic, and neutral. *Paratactic* predicates have at least two arguments, each of which has equal weight. *Hypotactic* predicates, on the other hand, have one or more arguments, but are themselves attached as subordinate to some proposition higher in the tree. In this way they form the basis for subordinating forms of surface structure at all levels. *Neutral* predicates may take either form; they may coordinate a number of equal arguments, or they may make their arguments be subordinate to something else.

There appear to be only two purely paratactic predicates; all the other candidates for the class turn out on examination to be neutral. *Alternative*, however, seems to be truly paratactic. It offers a choice of this, or this, or this, in the sense that as soon as one is chosen, no further choices are possible. At the circus Johnny's mother tells him, "Johnny, you may have a hot dog, or a hamburger, or a candy apple. Or you may have some cotton candy." If she puts it that way, the rules of the game are that once Johnny has picked something, the rest of the game is off. In this way the alternative predicate is like the logician's exclusive OR. Its arguments do not seem to be ordered intrinsically, as are the arguments of the OR connective in the Lisp programming language (McCarthy et al. 1962).

Response involves two semantic subtrees in an explicit order such that the content of the second is largely taken from the first, but new material is present as well. The most obvious response arguments would be a question and its answer. The question normally contains a good deal of information about the situation that is being talked about, and a successful reply can be made only by accepting the information that is given in the question. *Where were you last night? I was over at Charlie's.* begins with the questioner stating the equivalent of *you were somewhere last night* within the framework of his question. The answerer accepts that; if he does not, then he has to disagree specifically with it--*what do you mean, where was I? I wasn't anywhere*. (The latter answer is not too good as epistemology, but fine as ethnography, since it is equivalent to *I was at home*, and goes back to the observation that the question would probably never have been asked unless the questioner had reason to believe that the answerer was not in his usual place.)

Remark and reply illustrate the response pattern without the interrogative element in the first part. The reply to a remark has to be a reply to that remark, not to some other, if the speech is normal. On the other hand, the logical relationship between the remark and the reply does not have to be spelled out directly. *A: We have a couple of crocuses in bloom. B: I'd better take a look at my casting rod.* is a normal remark and reply in which the connecting link, crocuses imply spring and spring implies fishing, is left unsaid. This indirect linkage is much more common in replies to remarks than it is in answers to questions, although it also takes place there. *A: Where were you last night? B: I haven't had a drink for a month*. starts out with the explicit *you were somewhere last night; tell me where it was*. The answer, however, is not an answer so much as it is a reply to a remark like *I think you were at some bar* which is never actually said.

Both the plots of fairy tales and the writings of scientists are built on a response pattern. The first part gives a problem and the second its solution. The solution has to be a solution to the problem that was stated, not some other; and the problem is stated only to be solved. If the prince rescues some other maiden than the one that was originally abducted by the giant, he hasn't played the game. If the problem to be solved is one in plant breeding, the solution had better be a plant breeding solution, not a sociological one, even though some of the happiest moments of science come in fact from payoffs in the wrong area. Again, however, the content of the second part is dependent upon the content of the first part to a great extent. How to express this interlocking seems to be beyond us, especially if we try to express it as conditions on the arguments of the response predicate; but that is the shape of the relation.

I had originally regarded *sequence* as a paratactic predicate (ms). Since the development of Litteral's time index, however (ms), I find that sequence is best regarded as the neutral predicate *collection* with nonoverlapping time indexing of the arguments. Sequence is discussed further in Section Three of this chapter.

2. HYPOTACTIC PREDICATES

Hypotactic predicates relate their arguments to the proposition that dominates them rather than primarily relating their arguments among themselves. The hypotactic proposition is added as an extra argument to some other proposition, so that the hypotactic proposition as a whole is subordinate to the rest of the dominating proposition.[2]

Although I am not satisfied with the basis of classification, there does seem to be some point in dividing hypotactic predicates into *supplementary* or *supporting* predicates that add detail or explain or substantiate something, *setting* predicates that locate things in space and time, and *identification* predicates that establish and maintain reference. These three kinds are similar to the distinction made in Chapter Four between background, setting, and identification information in discourse in general. As a subdivision of hypotactic predicates themselves this three-way distinction is not ideal. In the first place, it does not match the kinds of information that were discussed in the earlier chapters exactly in that it leaves out collateral information. In the second place, it applies in the same loose fashion to paratactic and neutral predicates. What I think we have is two partly independent ways of classifying rhetorical predicates. By the form they give to a derivational tree they are paratactic, hypotactic, and neutral. By what they are used for in discourse they divide into predicates that relate the different kinds of information communicated in discourse with each other.

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[2] This characterization of hypotactic predicates differs from the one I gave in 'Outlines and overlays', in which the dominating proposition was tagged (by another rhetorical predicate) as *central* and the subordinate parts were *peripheral*. The representation of texts that this strategy gave me failed to show subordinating relationships in a way that could be capitalized on for describing mappings to surface structure. The current formulation, which was suggested by Bonnie Meyer (personal communication), is more compatible with the traditional notion of coordination and subordination.

So, within the framework of this inadequately loose classification, the following seven predicates could be called supporting: **Attributive** adds qualities or color to another predicate. It is used most appropriately when those qualities are needed to show consistency later on. Thus Dickens launches into his characterization of Scrooge with *Oh! but he was a tight-fisted hand at the grindstone, Scrooge!--a squeezing, wrenching, grasping, scraping, clutching, covetous old sinner! Hard and sharp as flint, from which no steel had ever struck out generous fire; secret, and self-contained, and solitary as an oyster.* All this adds to the characterization that is also built up by the narration of some of Scrooge's actions, and adds to the magnitude of the obstacle that is overcome in Scrooge's later transformation.

Equivalent, rather than adding information, simply restates it, as in *we planned to leave on May 1, the day of the spring celebrations*. The subordinated information may present a different side of the thing referred to than the thing it is subordinated to. In reference, however, the two are the same. In the attributive predicate, in contrast, the reference is determined by the dominating member and imposed on the attributive; *Scrooge* is the one who has been identified, and *solitary as an oyster* is linked to *Scrooge*, but not the other way around. In the equivalent relation, however, either member could be used to establish the reference; which one is dominant and which subordinate seems to depend entirely on the staging or perspective the hearer wishes to impose on what he says. If it is the calendar date that is important, *May 1* dominates; if it is the social significance of the day, then *we planned to leave on the day of the spring celebration*, *May 1* sets it up. Attribution does not permit this freedom of staging: **Oh! but he was Scrooge*, *a tight-fisted hand at the grindstone*! won't work for me.

Specific relates subordinate information that is semantically less inclusive to dominant information that is more inclusive and therefore less precise. *I heard a flock of birds flying south--geese* goes from the more inclusive *birds* to the more specific *geese*. Not only does the relation of specificity apply between lexical items like *birds* and *geese*, however; it also applies between very large semantic subtrees: *Uncle George told me a story about a little girl and three bears*. *It seems that there was this little girl named Goldilocks who lived in a house on the edge of the forest*. *One day ...* gives the story in very general terms, then links a retelling in specific terms to it. Connectives like *namely* and *that is* often introduce a subordinate subtree that is related to its dominating proposition as specific to general.

Christensen (1963) points out that there are several variations on the general-specific theme. One is abstract to concrete; something concrete is given as a specific instance of an abstract statement: *He was not a very ceremonious beau; he never sent her flowers or whispered silly things in her ear, and not infrequently, at the very last moment, when they had planned an evening at the theater or the opera, he would call up to say that he couldn't get away from the office.*[3] Another form is literal to metaphorical, in which the metaphorical statement stands as specific counterpart to the literal one: *she came into the room hopping mad, all guns blazing*. A third variation is denotative-connotative, by which I gather Christensen means that the more general statement is prosaic, with little load of evaluation, while the specific one is heavy on personal evaluation: *The former tenants had painted the wall red, the most garish crimson you can imagine*.

In *explanation* the subordinate element is different in kind from the element that dominates it. It may be abstract, relating the dominant element to some broader context, as in *your perpetual motion machine won't work because of the law of the conservation of energy*. Abstractions used as explanations generally go back to premises that are widely accepted in the society of which speaker and hearer are a part. It may be that these premises find their natural expression almost exclusively in the explanation relationship; that is when they are needed. They may take the character of maxims: *I don't want my wife to take skydiving lessons because you can't teach an old dog new tricks*. And as in the last example, the logical connection between the explanation and the thing explained may have a number of steps left out. Explanation in the main uses enthymemes, not proofs.

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[3] Louis Auchincloss, 'Maud', in *The injustice collectors*, New York: New American Library, 1949.

The subordinate element in an explanation may on the other hand be concrete, as when a background narrative sequence is told to explain something: *your perpetual motion machine won't work because you forgot to oil the bearings*. When an explanation consists of background events, the implication is that there is a cause-effect relationship between the background sequence and the dominating node.

Evidence has a subordinate element that involves a perception: *The bridge is out; I saw it fall*. On the other hand, just as explanation makes uses of enthymemes rather than tight logical sequences, so the perception used for evidence may be implied rather than stated: The bridge is out; I was there. Aristotle (*Rhet*. 2:20) suggests that it is more effective for evidence to follow enthymemes in making a point, since the enthymemes let the hearer know what it is the speaker is trying to establish. If he presents the perceptual evidence first, the hearer has to work by induction from cases to principles, and he may either induce the wrong principles or give up on the job if he does not see where he is headed.

Analogy ties a subordinate subtree to a dominant proposition not by logic but by likeness. Points of parallelism are exploited to support the main statement. For example, Leonard Bloomfield is said to have argued at a meeting of the Linguistic Society of America, "*Trying to do linguistics without reference to meaning would be like going into battle with one hand tied behind your back*" (K. L. Pike, personal communication).

Manner is difficult to fit in anywhere. It can obviously be treated as a rhetorical supporting predicate, though if it is one it might well turn out to merge with attribution. There is some reason, however, to think that it might be one of the roles that operates in lexical structure. It is related to the nonagentive semantic derivation (Chapter 9) in that many predicates can lose their Agent only in the presence of a manner element: *the farmer shells corn* does not have a straightforward nonagentive counterpart **corn shells* or **the corn shells*, but it does have a nonagentive counterpart with manner: *the corn shells easily*. Lakoff (1965) devotes the last part of his dissertation to a discussion of the relationship of manner elements within sentences to the passive and to other things. He concludes that manner elements are probably derived by a process similar to proposition consolidation (11.2) applied to a state predicate that dominates the predicate which corresponds to the main verb in surface structure. Whether this same analysis is possible for manner elements larger than the sentence I do not yet know. Consider the manner relationship of the second sentence to the first: *He got ready to shift down to go into the final turn*. *His hand trembled slightly on the knob, and his teeth were clenched*.

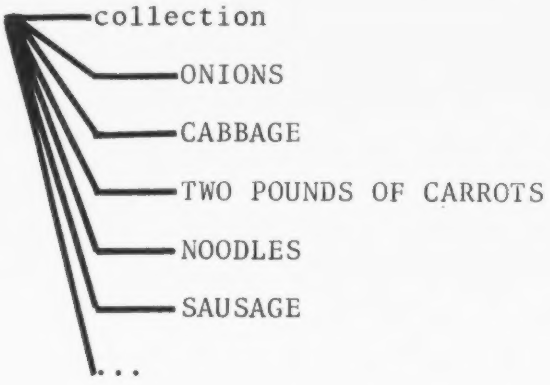
Setting predicates of **location**, **time**, and **direction** are added in as extra arguments, like any hypotactic predicate, to the proposition that dominates everything that goes on within a single setting. As has already been stated, some parts of narratives take place against a changing background; the settings of these are a special kind called a **trajectory**. It can be fitted into the propositional model as a particular kind of setting that has as its arguments a list of different places. Each place is matched against events dominated by the main proposition by means of matching time indexes (3.1). Just as certain subtrees of content are treated as coreferential with reference to grammatical patterns like the reflexive, so arguments of the trajectory subtree are treated as cotemporal (or temporally coreferential) with event subtrees when it comes to forming the surface expression of the trajectory. Each of the points named in a trajectory is likely to be treated in surface form as though it were the setting for one or more actions, even though semantically it is simply a point of coincidence between the trajectory as a whole and a particular action. Xenophon's 'from there he marched on' (*Anabasis*) moves Cyrus with his ten thousand Greeks in a single sweep from Sardis to Cunaxa, with incidents along the trajectory at various named points, for example.

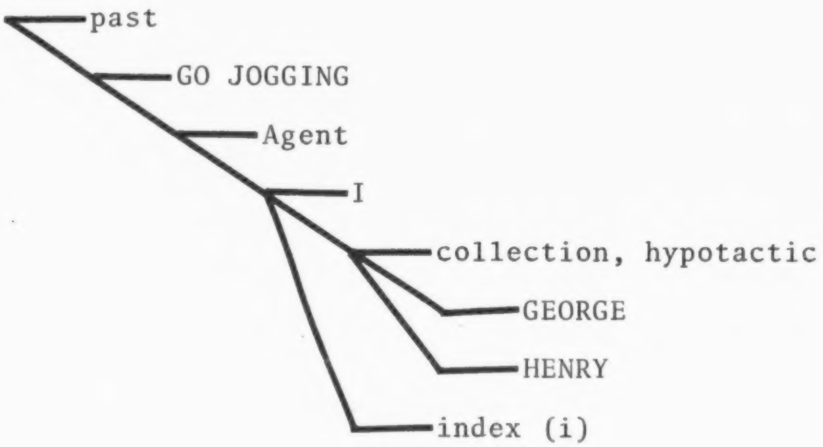
Much that goes under the name of identification is covered by rhetorical predicates that have already been introduced such as attributive, specific, and equivalent. There appear to be three other rhetorical predicates that are more narrowly identificational. **Representative** singles out one element of a group and makes it stand for the group as a whole: *The average voter finds it hard to make up his mind. All through the primaries he ...* **Replacement** defines one thing to stand for something else. In the case of representation, the element singled out is a member of the group it represents; but in replacement there is no membership. The tie is arbitrary: *Suppose we let this coffee cup stand for the Grand Army of the Republic. The sugar bowl is Forrest's men. I move the coffee cup so, and you see how the gap is closed.* **Constituency** identifies a part in relation to some whole: *He was one of the less important members of the mob. Last Tuesday a pal of his ...*

3. NEUTRAL PREDICATES

We have seen that the hypotactic predicates relate a subordinate proposition to a proposition that dominates it, and paratactic predicates dominate the arguments that they relate regardless of what proposition dominates them. The third and possibly most numerous kind of rhetorical predicate is the neutral predicate, which can assume either form. In some contexts it relates a subordinate proposition to another proposition that dominates it, and in others it relates two or more propositions on an equal basis. For example, the predicate I call collection can dominate a set of coordinate elements like the items in a grocery list: onions, cabbage, two pounds of carrots, noodles, sausage, ... without limit. The same collection relation can hold between one item that is taken as prominent or superordinate and others that are associated with it in a subordinate way: I went jogging with George and Henry. We did a mile and a half. The use of we shows that I ... with George and Henry defines a referential group, but the group is defined around I.

Since each neutral predicate can have two forms, there must be a way to distinguish the forms in a representation of the underlying structure. Here is one possible way: We need a Predicate Rule in the grammar (13.1). That rule has to allow for more than one predicate in one proposition anyway, in order to accomodate multiple role relationships of a single constituent like Agent-Source for give and Agent-Goal for get. I therefore propose to represent the hypotactic use of a neutral predicate by adding to it a predicate (call it hypotactic) that is present in hypotactic uses and absent in paratactic ones. This would give the two examples in the last paragraph the following underlying representations:


collection
ONIONS
CABBAGE
TWO POUNDS OF CARROTS
NOODLES
SAUSAGE
...


past
GO JOGGING
Agent
I
collection, hypotactic
GEORGE
HENRY
index (i)

The hypotactic form of the collection relation has also been called *comitative* or *associative*. It has been suspected of being a semantic role, since its expression is frequently like the expression of one of them. A Liberian friend, for example, used to comment on the seeming cold bloodedness of American hostesses who one moment would be telling one of their friends, "*We're having Gus for dinner*" and the next would announce "*We're having chicken for dinner*". He seemed relieved as he left the country for home that at least they had all gotten their deep structures right.

Collection when applied to events takes on a different form. Its surface expression frequently depends upon the time indexing of the events. When the events take place at different times the effect is one of temporal sequence. When they have the same time index the effect is one of simultaneous action. Because the difference in surface form (with signals like 'then' and 'later' for sequence and 'while' and 'during' for simultaneity) can be traced to the differences that are expressed by the time index, it is therefore no longer necessary to retain *temporal sequence* and *simultaneity* as separate predicates (Grimes ms, R. Litteral 1972). Both are instances of *collection* applied to events that are indexed for time. There are even hypotactic forms of time oriented collection: *after the other team arrived we sold the last tickets* subordinates the first clause, while *The highway department set up a jackhammer in my parking place. I took two Fizzy-Seltzers.* is paratactic. In simultaneous time *we descended on the place with mops and buckets, repaired the stairs, swept out the chimney, then painted the entire porch* is paratactic, and *while he was juggling a dozen eggs he kept flipping hoops up with his feet that he caught around his neck* is hypotactic.

Just as temporal sequence, simultaneity, association, and collection merge into a single semantic relation whose expression depends upon several extrinsic factors, so the relations commonly referred to as *condition*, *result*, and *purpose* seem to collapse into a single relation: **covariance**, whose surface forms are distinguished by properties of its arguments.

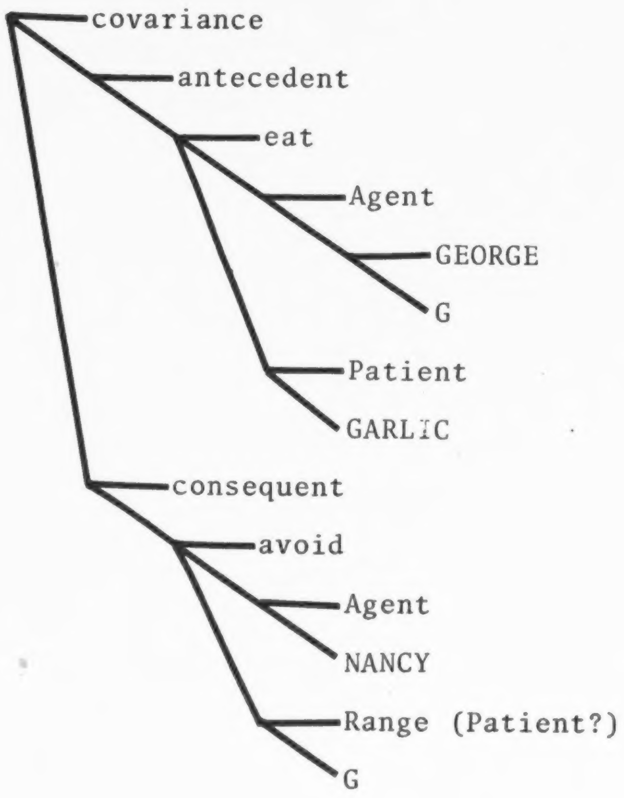

covariance
antecedent
eat
Agent
GEORGE
G
Patient
GARLIC
consequent
avoid
Agent
NANCY
Range (Patient?)
G

Figure 14.1 Paratactic form of covariance.
'George eats garlic. Nancy avoids him.'

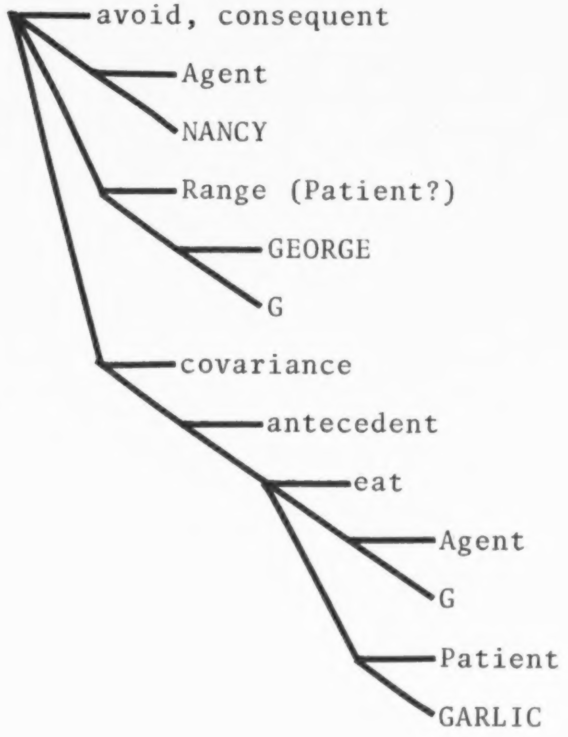

avoid, consequent
Agent
NANCY
Range (Patient?)
GEORGE
G
covariance
antecedent
eat
Agent
G
Patient
GARLIC

Figure 14.2 Hypotactic form of covariance with dominant consequent. 'Nancy avoids George because he eats garlic.'

The covariance relation normally requires two arguments, which may be labelled the antecedent and the consequent. Although these could be defined in terms of a pure logical relation like material implication, I think it is more realistic to think of covariance in its ordinary form as having a meaning more or less parallel to the logical relation, but to take those instances of it in which the logic is actually water tight as a special case that arises rather frequently in the classrooms of logicians and once in a while elsewhere. In terms of semantic structure, antecedent is a predicate that must be in the proposition that forms one argument of the paratactic form of covariance, and consequent is another predicate that must dominate the other.

The hypotactic form of covariance has as its single argument a proposition that contains either antecedent or consequent. If the subordinate proposition has antecedent as its predicate, then the dominating proposition has consequent adjoined to its predicate to give a multiple predicate. If the subordinate is consequent, then the dominating one has antecedent adjoined.

To illustrate, let us look at the propositional structure of a paratactic use of covariance. For the utterance George eats garlic. Nancy avoids him. we might propose the analysis of Figure 14.1, covariance with two arguments, one of which has antecedent as its predicate and the other of which has consequent.

A hypotactic use of the same predicate is illustrated in Figure 14.2. This arrangement corresponds to a different perspective on the relationship of the parts, and

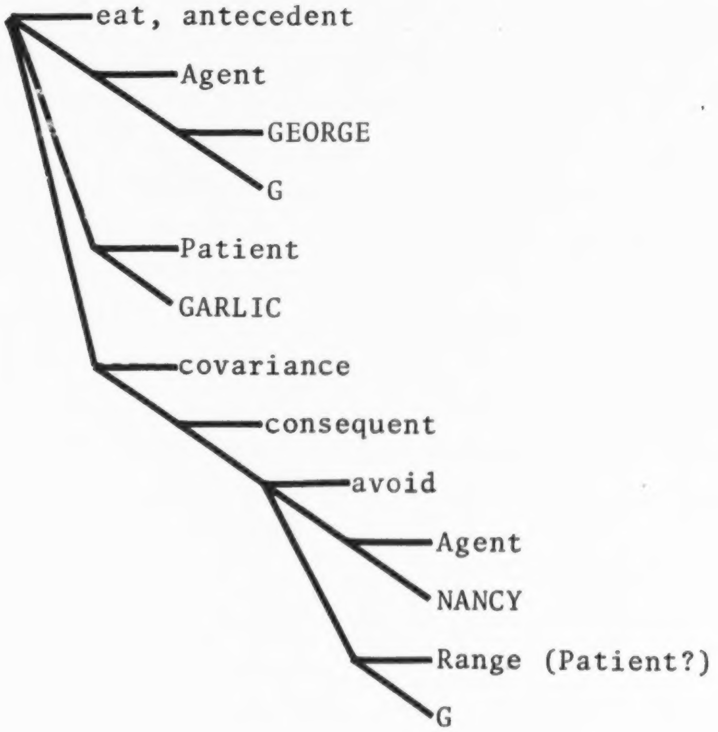

eat, antecedent
Agent
GEORGE
G
Patient
GARLIC
covariance
consequent
avoid
Agent
NANCY
Range (Patient?)
G

Figure 14.3 Hypotactic form of covariance with dominant antecedent. 'George eats garlic, which is why Nancy avoids him.'

yields a sentence like Nancy avoids George because he eats garlic. The consequent is dominant and the antecedent subordinate.

When the antecedent is dominant and the consequent is subordinate, the hypotactic form of covariance appears as suggested in Figure 14.3. It would be involved in something on the order of George eats garlic, which is why Nancy avoids him.

My reason for distinguishing one form of hypotactic predicate from another is this: relations of dominance and subordination have to do ultimately with the staging of parts of a discourse. The speaker imposes a perspective on the purely cognitive aspects of meaning. This suggests that whether a neutral predicate is taken as paratactic or as hypotactic depends upon other decisions in the area of staging. At the more deeply underlying levels of structure, the distinction between paratactic and hypotactic might not be important in itself, but only the result of the interaction between staging and content.

There are various surface expressions of the covariance relation. Which one is used depends partly upon whether covariance has the paratactic or the hypotactic form, and partly upon the makeup of its arguments. Conditions are one common form for expressing covariance. They are further divided in various languages according to various criteria such as whether the antecedent is presumed to be a fact or is only hypothetical or whether it is positive or negative. The consequent also has different forms depending upon whether it is taken to be a real possibility or as a

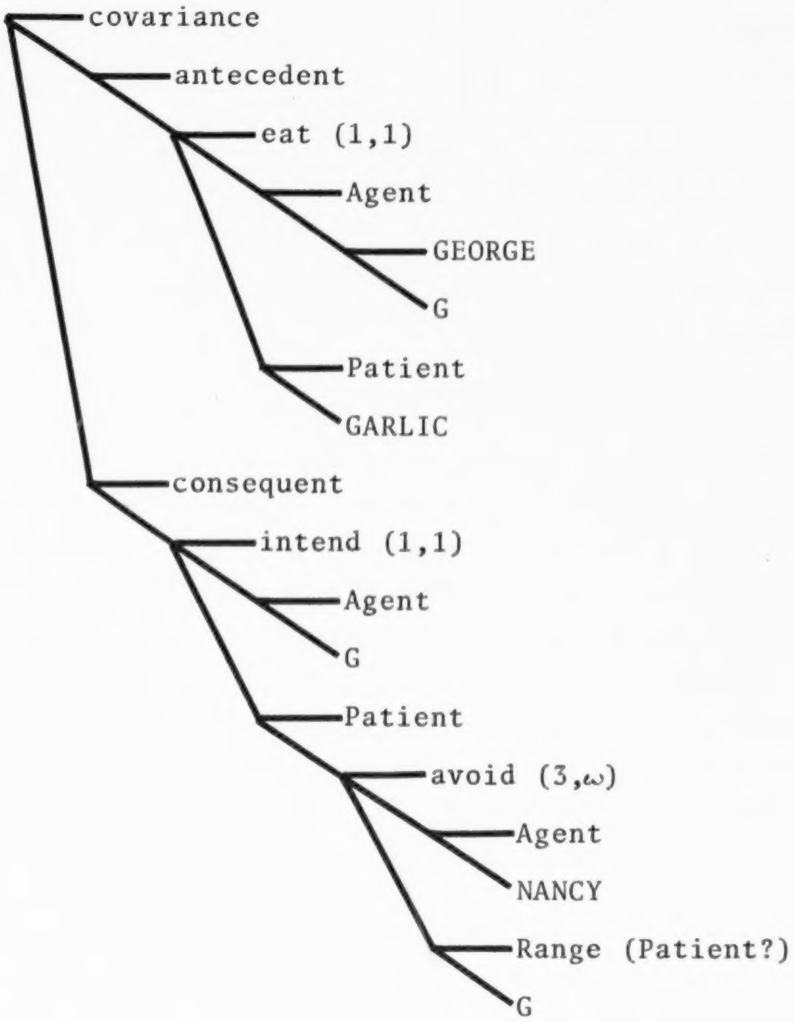

covariance
antecedent
eat (1,1)
Agent
GEORGE
G
Patient
GARLIC
consequent
intend (1,1)
Agent
G
Patient
avoid (3,ω)
Agent
NANCY
Range (Patient?)
G

Figure 14.4 Covariance expressing purpose with intervening predicate intend in the consequent. 'George eats garlic so that Nancy will avoid him.'

collateral assertion (4.4) that might have happened but did not--the well known contrary to fact or irrealis condition of classical grammar. The surface form may also depend on whether the consequent is positive or negative. I suspect that conditions represent the hypotactic form of *covariance*, with the antecedent (**protasis** in the classical terminology for conditions) subordinate to the consequent (**apodosis**); but this may vary from language to language. Reasons appear to be closely parallel to conditions in these terms: *because* ... *therefore* is perhaps only a slightly more formal version of *since* ... *then*, which in turn accords with those varieties of *if* ... *then* in which time sequence is not too important.

Time sequence, on the other hand, is extremely important for purpose and result relationships. Result can be characterized as a condition on time indexing of the two arguments: the antecedent must precede the consequent in time. Purpose is similar to result except that the consequent dominates an intervening predicate *intend* whose Experiencer must be coreferential with the Agent of the base predicate that carries the main semantic content of the antecedent. The base predicate of the consequent is Patient of *intend*. This relationship is diagrammed in Figure 14.4, which shows the paratactic use of *covariance* with time indexing and *intend* as a means of showing purpose.

Adversative is the predicate for collateral relationships. In its paratactic form it simply presents what happened along with what did not happen, or along with what the hearer might think happened: *it was a case of sink or swim*. More frequently the things that are not so are subordinated to the thing that is being asserted: I'd rather have coffee than tea.[4]

It would simplify the trees that represent semantic derivations if some of the information communicated here by means of rhetorical predicates could be added as features to some of the elements. This approach would give a representation more closely in line with some that Chomsky has suggested. The result would be that many of the connective function words in surface structure would be introduced by particle transformations, similar in kind to segmentalization transformations that add affixes to words (Jacobs and Rosenbaum 1970).

The main drawback of this approach lies in the fact that semantic features are associated in a Chomsky grammar with lexical items, not with nodes that dominate major constituents. In a really high level relationship (like the one implied by the therefore in Romans 12:1, which is generally agreed to link the first eleven chapters as antecedent with 12 through 15 as consequent) it might not be possible to decide which lexical item the rhetorical features are added to, and the transformational component would have to raise them to a much higher node anyway. It makes more sense to assert the relationship at the point where it belongs.[5]

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[4] Another possible analysis is to have all paratactic usages be assigned to the alternative paratactic predicate and the hypotactic ones to adversative, which is then no longer neutral but hypotactic. If this can be done, however, it could equally well be argued that the two constitute a single neutral predicate alternative.

Another reason why it seems best to stay away from a feature representation is the one Glock and I mentioned in 1970: the property of redundancy, which is useful when applied to phonological feature systems, verges on being absurd when applied to semantic feature systems. Redundancy fills in one feature in the presence of another; for example, in English all phonological segments that are +nasal are also +voiced by a regular entailment that says something that needs to be said about English. Phonological redundancy fills in a specification for every feature in every segment. To try to apply this in semantic space results in a mountain of irrelevant feature specifications being heaped up over nearly everything, with no corresponding gain in insight into the system. There are local redundancies such as +human entailing +animate, but they have to be stated in a way that provides reasonable local boundaries.

In short, whatever the utility of semantic features may be for talking about lexical relationships--and they are not the only way to talk about them in a generative grammar--they show little promise yet as a vehicle for expressing rhetorical relationships. Propositions, on the other hand, give a way of making useful and interesting observations in which the relevant information is located approximately where it belongs.

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[5] Aside from this remark, I am bypassing the discussion of the place semantic features play in the lexicon itself. Since it appears possible to handle ordinary semantic features like ±human, ±count by means of the concept of associative linkages within the lexicon, I find no compelling reason for building them into the theory in a different though more traditional form.

CHAPTER FIFTEEN

MODALITY

[This is the first of several chapters that have been projected but could not be finished in time for this report. It consists of a discussion of tense, aspect, and mode viewed from the point of view of the part they play in discourse.]

CHAPTER SIXTEEN

DISCOURSE SEMANTICS AND THE SURFACE HIERARCHY

[This chapter discusses the relationship between underlying semantic structure as developed in Chapters 8 through 15 and surface hierarchies. It looks at standard organizing templates such as plot from this point of view. It also suggests alternatives to propositional grammars of the variety defined in Chapter 13.]

CHAPTER SEVENTEEN

LINEAR ORGANIZATION

[This chapter gives an introductory overview of the following five chapters. Whereas the preceding chapters have been concerned with various kinds of hierarchical organization, both in semantics and in surface form, the phenomena discussed in Chapters 18 through 22 are largely independent of those hierarchies.]

CHAPTER EIGHTEEN

PARTICIPANT ORIENTATION

The study of participant orientation systems[1] has turned out to be helpful in the analysis of some kinds of texts. It starts out from two simple ideas.

The first is that in any single event in a story there are very few participants involved,[2] usually not more than three. The other basic idea is that the relationship of participants to events in a sequence is conventionally constrained in some languages. In other words, there is a regular sequencing of the orientation of participants to events through a story. Becker (1966) suggests that the point where this orientation changes is structurally significant.

The conceptual machinery for participant orientation was worked out by Ivan Lowe (1969). He first traced the principle discussed in Chapter 5 that intervenes when pronominal reference is embedded in quotations, a problem originally proposed by Kenneth L. Pike (Pike and Lowe 1969). The principle turned out to be not only simple but complete in the sense that there is no depth of embedding for which it does not apply. It is worked out using mathematical group theory.

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[1] This chapter is adapted from a paper that was presented to the Linguistic Society of the Philippines in July of 1971 and submitted for publication in the Philippine Journal of Linguistics.

[2] This principle was suggested by Bellman's approach to dynamic programming, in which the number of factors that influence any decision in an optimal sequence of decisions is taken to be very small (Bellman and Dreyfus 1962).

Later Lowe worked with Mary Ruth Wise, who had studied the identification of participants in discourse (1968). On investigating where pronouns and noun phrases come in text, they began to notice a regular rotation of participant reference. This rotation, however, applied to sequences of events rather than to embedding. They applied the group principle to discourse (Wise and Lowe 1971) and found that there is an independent basis in the referential system for recognizing things that would also need to be recognized on other grounds as paragraphs, whether by unity of setting, by introduction of characters, or by linkage. The exact relation between participant orientation and paragraphing, however, seems to be language specific.

1. PERMUTATIONS

Before going into participant orientation as a linguistic phenomenon, a concise way of talking about it in the abstract is needed. First of all, there are only a few ways of arranging two or three items. For example, if we have any A and any B we can put them either in AB order or in BA order, and no other.

To apply the Wise-Lowe model to text, an appropriate order principle or ranking of elements has to be established to permit different orderings to be distinguished. The ranking used is based on underlying role or case (Chapter 8).[3] Agent is the highest ranked role; the others are ordered below it in a way that will be given in detail later.

To change the ordering of only two items so that the one that ranked lower in case now ranks higher and vice versa is an operation of *reversal* (r). For two items, say 1 and 2, reversal is symbolized as (12), which expresses a permutation in which the elements in the parentheses are moved one position to the right, and the last element is brought around to the front; the notation is a general one that permits permutations of any number of elements to be included in a single statement. Here it has the effect of interchanging 1 and 2: (12) = 21.

Reversal is the only orientation operation in certain texts, including the text on which the idea was first worked out. It starts out with one character as Agent and the next as, say Goal, then reverses so that the second character is Agent and the first is a lower ranked role. A second reversal brings them back into the original orientation, which signals a new paragraph.[4]

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[3] The ranking itself was arrived at empirically, but seems to hold up in a number of languages. Because of current uncertainty on theoretical grounds about whether instruments and benefactives are best considered primitive roles or abstract predicates, I am not prepared to integrate participant orientation into a general theory of the semantic structure of discourse. It is quite possible that the sequencing of role sets is another kind of topicalizing mechanism (Chapter 21). If so, it operates in the area of assigning the referential indexes that correspond to participants to underlying roles, and thus controls the choice of lexical items indirectly. Forms of topicalization with which we are more familiar operate on surface order; this is considerably deeper.

Another text based on reversal is reported by Virginia Bradley for Jibu of Nigeria (Bradley 1971). The characters are a bridegroom and his group and the narrator and his group. The story starts with the bridegroom extending an invitation to the narrator, an Agent-Goal situation in which Agent ranks higher than Goal. The narrator responds by going to where the bridegroom is; the narrator as Agent now outranks the bridegroom as Goal. Then the bridegroom and his group do something as joint Agent with reference to the guests at the wedding as a Patient group; and the guests, changing to Agent, react. The structure of the text revolves around the regular return to the initial configuration of bridegroom as high ranking and narrator as low ranking; each reversal that gives this state begins a new section.

Other texts juggle three participants. There are six different possibilities of rearranging three things. (The number of possibilities is equal to the factorial of the number of things being permuted. Factorial $n! = n\ (n-1) \ldots 1$.) To generalize the notion of operations, a reversal

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[4] Philippine languages appear to rely to a small extent on participant orientation; but more explicit means of identification via pronouns and noun phrases are common. Some languages of Papua New Guinea (S. Litteral, ms), Bolivia (Briggs, ms), and Nigeria (Bradley 1971) make more extensive use of it.

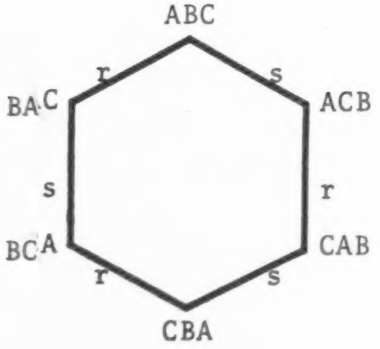
ABC
ACB
CAB
CBA
BCA
BAC
r
s
r
s
r
s

Figure 18.1. Permutations of three things.

involving three things is defined as (12) (3), signifying that 1 and 2 permute with each other and 3 permutes with itself, or in other words stays where it is.

A second operation, *switch* (s), instead of interchanging the first and second things, interchanges the second and third things: (1) (23). Notice that the reversal of a reversal ($r \cdot r$ or r^2) goes back to the starting arrangement, and so does the switch of a switch ($s \cdot s$ or s^2). This is the notion of an *inverse*.

A third operation, *identity* (I), the operation of doing nothing (1) (2) (3), completes the system. These three operations handle all participant orientation orders for three participants, and are related as $I = r^2 = s^2$.

Using A, B, and C to stand for participants and left to right order for high to low role ranking, let ABC be the base or identity state of the participants. Then r(ABC) = BAC, which can be called the reversal state, and s(ABC) = ACB can be called the switch state. The states are named from the operations it would take to get to them starting from the ABC or identity state. Going on, BCA is the rs state: rs(ABC) = s(r(ABC)) = s(BAC) = BCA. CAB is the sr state: sr(ABC) = r(s(ABC)) = r(ACB) = CAB. CBA is the srs or the rsr state: srs(ABC) = s(sr(ABC)) = s(CAB) = CBA, but also rsr(ABC) = r(rs(ABC)) = r (BCA) = CBA. We summarize all this in Figure 18.1.

These operations, simple and compound, form a mathematical group. That is, they have the following four properties: (1) Closure. Any sequence of operations results in another operation in the same system. No sequence of operations goes out of the system. For example, rsIrrsrIrss

$= r$, since $r^2 = s^2 = I$. (2) Associativity. Grouping operations by parentheses makes no difference. $(rs)r = r(sr) = rsr$. (3) Inverse. Every element has an inverse, and there is no sequence of operations that cannot be inverted by another sequence of operations. $r \cdot r = s \cdot s = sr \cdot rs = rs \cdot sr = rsr \cdot rsr = srs \cdot srs = I$. (4) Identity. There is an operation I which, applied to any operation in the group, gives the same operation: $I \cdot r = r$, $I \cdot s = s$, and so forth.[5]

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[5] An equivalent group could be defined starting with two other operations, say $x = (123)$ and $y = (13)\ (2)$ together with I. Defining the r and s operations in the context of role ranking, however, give us a linguistically insightful way of talking about the phenomenon that would not be as apparent if we took other operations as primitive.

2. SEQUENCES OF PERMUTATIONS

Orientation, as mentioned requires a ranking of semantic roles of cases. The ranking that seems to give the clearest results is a composite of rankings that have been worked out in several languages. It is tantamount to a scale of relative involvement in actions: Agent, Experiencer, Source, Goal, Patient, Instrument, Noninstigative Cause, Benefactive, Factitive (result), Range (location), Essive, and zero to represent a participant who is wholly removed from an action. On this scale Agent outranks Patient and Experiencer outranks Benefactive.

A text in Ayore of Bolivia (Briggs ms) illustrates ranking with three participants. The first sentence is an introduction or verbal title: 'I killed a jaguar on another occasion'. It has two participants, narrator and jaguar, Agent and Patient. If A is the narrator, B the jaguar, and C a third character not yet mentioned, and Agent outranks Patient and Patient outranks zero, the ranking is ABC: A kills B with C not mentioned.

The story goes on: 'I killed a jaguar' I(ABC) = ABC. 'He jumped at me' r(ABC) = BAC. 'I lanced him as he came' r(BAC) = ABC, 'but he took out my lance' r(ABC) - BAC,[6] 'and I followed him and found him far away' r(BAC) = ABC. 'I went to kill him with my lance' I(ABC) = ABC, 'but Bague's father found me' sr(ABC) = CAB, 'and killed him right under my nose' s(CAB) = CBA. 'He and his friends carried him back' I(CBA). The end of the story has the form of a coda: 'The place where I killed him is in that direction' srs(CBA) = ABC.

The regular progression of events in a story is carried by single permutation operations: r and s. Whenever we get composite operations, sr, rs, rsr, or srs, there is a surprise, an interruption, or a point where things go wrong; and this happens not only in Ayore but in several languages.

In Koine Greek, in the first chapter of St. John, John tells his disciples who Jesus is, his disciples follow Jesus and talk with him, then Andrew goes off and gets his brother Simon and brings him to Jesus. Jesus says to him, "You are Simon, son of John; you shall be called Cephas" (meaning a stone). The point where Jesus addresses Simon directly is an sr transition, the surprise point of the whole narrative. What happens is completely unpredictable to Peter. The story up to that point goes by r, s, and I. But that is the point at which Peter gets the shock of his life.

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[6] The lance can be considered a prop (3.2) rather than a participant because whether it is considered or overlooked makes no difference to the orientation analysis. Note Wise and Lowe's partitioning of referents, so that their analysis is based on the relationships of the people alone.

Back to the jaguar story, the same thing happens. From the point of view of the narrator, the jaguar hunt has been going normally. Then just as he is standing over the jaguar ready to finish him off with his spear poised in the air, out of the jungle comes C and kills the jaguar instead. The shock even shows up in the linguistic structure at this point.

Going from the actual killing of the jaguar to the coda, which reminds us that it was really A's jaguar hunt, we have a concise description of what could be called a devious mental process. The narrator brings the story back to the state in which he started it, the equilibrium state or base line, even at the cost of twisting the arm of reason in order to get back there.

One function of an equilibrium state, as Labov and Waletzky point out in their paper on narrative structure (1967), is to relate the narration itself to the performative situation in which the narration is given. The narrator does that first of all by identifying himself in the title as both the teller and the major actor. The phrase 'on another occasion' in the introduction has the effect of referring the story to some entirely different time. At the end, 'the place where I killed him was in that direction' brings the story back to the place of telling, so that at both ends it is locked into the performative. Not all stories do this, but it is a common device. The English formula Once upon a time... matched with They all lived happily ever after has that function, among other things.

3. PERMUTATION STATES

Up to now we have labeled operations. We can also label states in terms of the operations that are performed in order to get to that state from some other state. Looked at in this way, BAC is the reversal state if we take ABC as the starting state, and CBA is the rsr or srs state.

In a story with an identifiable starting state and ending state such as is defined by the title and the coda, we can go through and name the states, taking the starting state as the identity state, and using the operations to name each of the six states of the system. ABC is the I state, BAC the r state, ACB the s state, BCA the rs state, CAB the sr state, and CBA the rsr or srs state, each calculated with reference to the identity state. During the early part of stories the states tend to stay around the I, the r, and the s state. The tension point of the story, however, almost always comes in the srs state. In the jaguar story, 'C killed B right under A's nose' is the srs state, and is obviously the tension point. This gives us a formal means of recognizing it.

The notion of a tension state is distinct from state transition operations. The composite operations sr, rs, and srs give jumps in the action. But stories can build up to an srs tension state without any jumps. Also, the development from the tension state back to the equilibrium state is frequently smooth. Therefore the information we get from plotting states and the information we get from plotting sequences of operations do not necessarily coincide.

In texts with a recognizable identity state there is an interplay between the role of the character in the discourse as a whole and the role of the character in each action, as represented by the same system. *Discourse roles* distinguish the participant who is characteristically the *initiator* throughout the discourse from the one who is characteristically the *reactor* throughout the discourse, and cast all others in a tertiary role. In the jaguar story A is the one who moves things along. The jaguar is cast as the reactor, and C is neither initiator nor reactor. The identity state is then the one in which the initiator is acting as initiator, the reactor is acting as reactor, and the other is acting as other: ABC. In other configurations like BAC or CBA there is a temporary discrepancy between the relation of the participant to a single action and his overall role in the story. State analysis gives a kind of measure of that discrepancy from the identity state, which fits the idea of a tension state.

There are texts for which it is hard to tell what the identity state is; possibly no identity state exists for them. The only significant thing in this case is the sequence of operations that give the the transitions between one state and another. There it still holds true that the smooth development of the story is built on identities, switches, and reversals, and surprise points follow composite operations.

In some languages where up to now it has been hard to tell what pronouns refer to, one of the principles that may operate is this regular progression of the relation of

ELEMENTARY PERMUTATIONS

r = (12)(3)(4)

s = (1)(23)(4)

t = (1)(2)(34)

I = (1)(2)(3)(4)

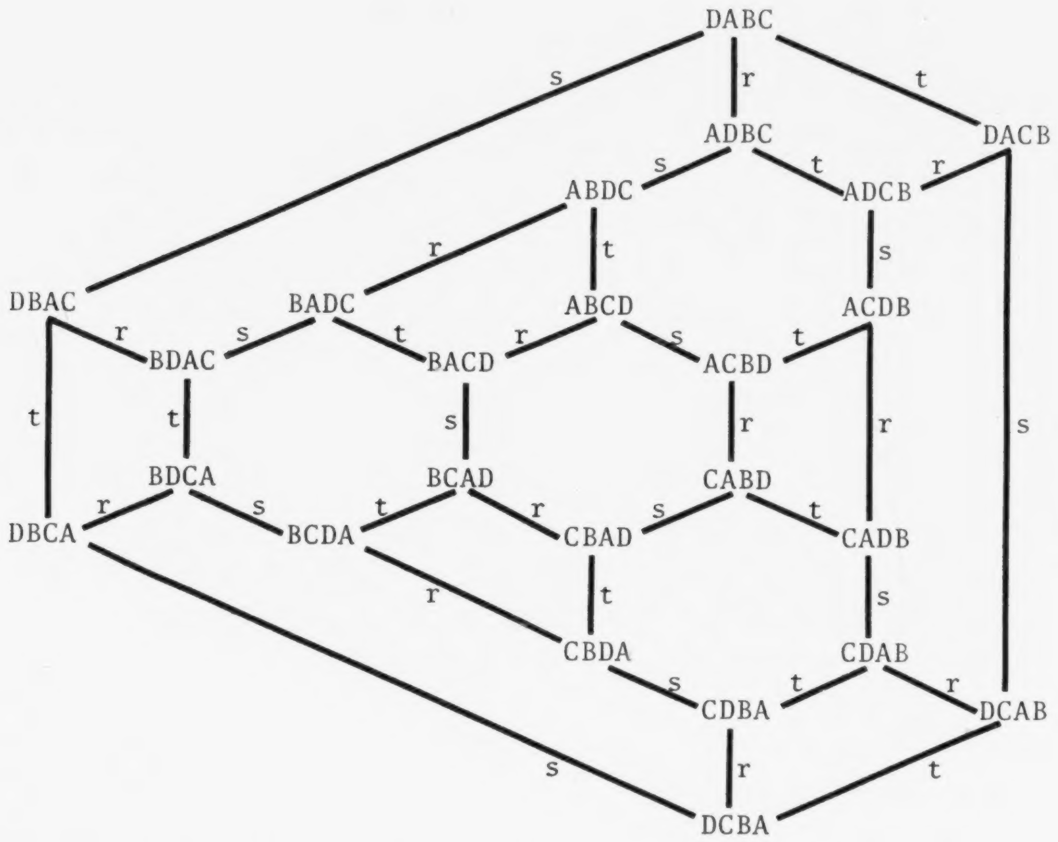
DABC
s
r
t
ADBC
DACB
s
t
r
ABDC
ADCB
r
t
s
DBAC
BADC
ABCD
ACDB
r
s
t
r
s
t
BDAC
BACD
ACBD
t
t
s
r
r
s
BDCA
BCAD
CABD
r
s
t
r
s
t
DBCA
BCDA
CBAD
CADB
r
t
s
CBDA
CDAB
s
t
r
CDBA
DCAB
s
r
t
DCBA

Figure 18.2. Permutations of four things.

participants to actions (Larson ms). If it is built so deeply into people's mental makeup as to recur in widely spaced languages around the world, it could operate even when other more obvious principles of reference do not.

The usual principles for pronoun reference include: who was mentioned last? who is the story about? who is the paragraph or sentence about? Lines of distinction in a pronoun system, like person or number or gender distinctions, also serve to keep reference sorted out. But in a story with four participants, all of them 'he', and in a language that is sparing of pronouns anyway, there must be some other principle operating. We observe as a matter of fact that people can keep references untangled in a situation like this. (Not everybody keeps all his pronoun references untangled all the time, even in languages that make this easy.) When they do get their reference right, what are they doing? Participant orientation is a possible model for part of it.

Four participants operating at once has not been found yet. Nevertheless, the Figure 18.2 covers four. In addition to the three operations of identity, reversal, and switch, there is a *trade* operation (1) (2) (34). The hexagon in the middle of the figure corresponds to the diagram given earlier. In three dimensions Figure 18.2 would come out a fourteen-sided figure composed of eight hexagons and six quadrilaterals.

Bradley (1971) describes the expansion and shrinkage of participant groups as already mentioned; the participants in the orientation system do not necessarily include the same individuals at each stage. Part of her text also includes a change of scope in the orientation system. A group that throughout the main part of the text is one participant, the initiator group, appears in one scene in a closeup view that splits the members of that group temporarily into initiator and reactor subgroups. After that scene the group returns to single participant status without further internal differentiation.

Role substitution takes place when a series of individuals appear in turn in the same relation to one of the participants. For example, in an Ilianen Manobo tale (Hazel Wrigglesworth, personal communication) a lizard, the main character, confronts a deer, a woodpecker, a crocodile, and a shrimp in turn. While the lizard is talking with one of them as initiator to reactor, the reactor mentions the next one in the series, and is told to call him: the lizard (A) tells the reactor (B) to call the next character (C). The next character appears and the former reactor drops from the story. But rather than the next character's reply to A's call being a switch-reversal, which would give CAB, the character who was first mentioned as C rather seems to take over the reactor role of B by substitution, while the former B drops out of sight. By role substitution, then, the operation becomes a simple reversal: from ABC to BA(C), but with B_2 taking over the identity of the former C and the former B_1 dropping out as a dummy C, no longer active.

CHAPTER NINETEEN

COHESION

Most of linguistics has been directed toward the study of the content structure of language. I have already mentioned that there seems to be evidence for two other kinds of structure that interlock with content. The first, which I discuss in this chapter, is the system of *cohesion*, which has to do with the way information mentioned in speech relates to information that is already available. The other, which is introduced in Chapter 21, is what I call *staging*. It has to do with the kind of perspective from which each section of a discourse is presented to the hearer.

Cohesion, probably because it is partly time dependent, tends to be dropped into the performance category of Chomsky's competence-performance dichotomy (1965). Even within the limits for which that distinction is useful, however, I think it must be granted that part of the speaker or hearer's knowledge of his language includes the capacity to assign and interpret correctly the features that signal cohesion, to recognize aberrations, and to disambiguate--in short, if there is a basis for talking about linguistic competence in the area of content, where most of the discussion has taken place, whatever arguments justify it there also support it in the area of cohesion.

Much of my thinking on the subject of cohesion has been influenced by Michael A. K. Halliday's articles on transitivity and theme in English (1967a, b, 1968). I have, however, departed from his terminology for two reasons. The first is that some of the terms he uses are chosen from the gray area of nomenclature in which each linguist does that which is right in his own eyes, and few do the same as anyone else. His terms 'unit' and 'focus' fit here; there are enough different uses of each in the current scene that his use, no matter how carefully it is defined, is bound to be misunderstood. My own preference is for terms that are a little easier to associate with the phenomena they describe, and a little less likely to be used in a different sense by the next person who happens to be looking for a term. The second reason for not following Halliday's terminology is that other terms he uses tend to be put into morphological paradigms that are not transparent. For example, he distinguishes 'mode' and 'modal' in a tightly defined way; but I (and a number of other linguists I have asked about it) have to keep turning the pages back to keep track of which means what. I have tried, therefore, to select terms that stand far enough apart from each other in the associative relations I have for each that I can retain some idea of how they are distinguished as well as the fact that they are distinct.

I follow Halliday rather than Wallace Chafe (1970a) is discussing cohesion because Chafe blurs the distinction between information structure or cohesion on the one hand and thematization or staging on the other. For his purposes this lack of distinction does not hurt, because his remarks on the distribution of new and old information apply mainly to unmarked thematization in Halliday's sense. He does not, for example, worry about cases like *my hat I had to leave at the cleaner's*, under the circumstance that the theme *hat* and the most predictable information *I* are different. In a fuller treatment of the phenomena, or in an expansion of his generally stimulating ideas so as to embrace discourse, I doubt that Chafe would remain satisfied for long with his initial underdifferentiation.

1. INFORMATION BLOCKS

The first observation to be made about the cohesive structure of language is that the speaker, in addition to having to decide on the content of what he is talking about and how it is to be organized, decides also how much of it he thinks his hearer can take in at one time. He makes this decision in the light of what he thinks the hearer already knows. The package of information that results, or *information block* (Halliday's information unit), may or may not correspond to some easily recognized substring of the content. In English its extent is signalled by a single intonation contour, while in Oksapmin (M. Lawrence ms) it is delimited not only by intonation but by verbal inflection as well. An utterance like *THIS / is the FIRST TIME / we have EVER / DONE anything like this* (using capital letters for words that are intonationally prominent, following Gunter 1966, and slashes to separate intonation contours) has a different information blocking from *This is the first time we have ever DONE anything like this*, even though they are the same in content.[1]

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[1] This simple intonational notation overlooks the kinds of pitch patterns that are involved in intonation and a good deal of the dynamics as well. These factors, however, seem to be controlled by the speaker's attitude on the one hand, and by certain grammatical traits on the other. They are outside the system that communicates cohesion as such, which is all this notation needs to represent.

Several factors enter into the decision to block information in one way or another. The first factor is the information a speaker has already given. Anything that the speaker feels is already clear is not as likely to be singled out by being put in a separate block as are expressions for things concerning which he is sure the hearer knows nothing. The same thing holds for expressions that refer to the immediate situation of speech. Performative elements like *I* for the speaker and *you* for the hearer, or *this* and *that* for visible entities in their surroundings, are not likely to be put in separate information blocks, especially after attention has been called to them linguistically for the first time.

Besides these first two factors, which we might label **textual** and **situational** for convenience, there seems to be an overall decision on the part of the speaker about the **rate of information injection** that he wishes to establish. In English the highest rate of information injection is that of telegraphic style, in which the apparatus of cohesion is squeezed to the minimum that a tortured grammar will permit. The famous *sighted sub sank same* of World War II is about as far as we can go in making every word count. In standard journalistic style we get a high rate of information injection in the lead paragraph and a constant decrease in the rate for succeeding paragraphs. At the other end of the scale we might have the well padded term paper or the television talk show, where the frequency of introduction of new information per line or per sentence is decidedly low.

The natural tendency is for the speaker to help the hearer by making his information blocks short when his rate of information introduction is high. The wartime message cited in the last paragraph, for example, is usually punctuated with a comma in the middle, presumably to indicate blocking, though I doubt that the original dispatch contained one. On the other hand, when the speaker is acting as though his rate of new information is low, the tendency is for the information blocks to be long. As an example we might consider a linguist who is uncertain of himself presenting a paper to an audience who he suspects know nearly everything he is going to say anyway.

There are two interesting deviations from this pattern in contemporary English. The first is the practice of some radio and television newscasters to speak in rather large information blocks even though they are communicating new information at a high rate. When compared with the practice of those announcers (most sports announcers and some newscasters) who follow the normal rule of short blocks for a high rate, their adopted pose makes sense. If their information blocks were as short as the newness of the news implied, they would leave their listeners breathless and gasping at the end of five minutes. By lengthening their information blocks they suggest the fiction, "You are well posted on the world situation. Nothing I have to say will surprise you. There are, however, a few details I can add to what you already know, and these may interest you." That listeners accept this fiction gratefully is backed up by what appears to be a positive correlation between the salary of the newscaster and the average length of his information blocks.

The other exception is in the opposite direction. As is well known, politicians tend to speak in very short information blocks: *My FRIENDS / I COME here this evening / to TELL you / that we are ALL / FACED / with a GRAVE DECISION./ We MUST / ELECT / the BEST / most HIGHLY QUALIFIED / CANDIDATE / from among our RANKS*. Here any hearer who could not predict the rest of the speech himself is simply a novice at politics. The content is highly redundant; the real rate of information injection is extremely low. The blocking, however, is characteristic of a very high rate of information injection. Perhaps the fiction is this: "You and I need to feel that what we are doing is important. Important things are characterized by a high information flow. I will talk and you will listen under the trappings of a full flow of information, and neither of us will question how new the associated content really is."

Information blocking segments an oral discourse into an integral number of blocks, with no fractional residue. We would not, for example, find a speech that consisted of 103.7 information blocks, even though we might find speeches of 103 or 104 information blocks. Some writers punctuate by information blocks, though my experience is that most editors punctuate by surface grammar more often than by information blocking. (Example: *Some writers, punctuate by information blocks, though my experience is, that most editors punctuate by surface grammar, more often than by information blocking*.)

Cohesion in discourse appears to involve the further grouping of information blocks into larger units, rather like the way sentences are grouped into paragraphs in written discourse. The intonational grouping of mesosegments in Sierra Nahuat (Robinson 1966) into macrosegments reflects this kind of block grouping. In Oksapmin (M. Lawrence ms) the normal inflection of verbs aids in delimiting information blocks, working along with intonation; but there is a special final inflection that terminates a group of information blocks.

In English it seems possible for one information block to be interpolated within another in a parenthetic fashion: *Bill wrote / or SAID he was going to write / the NOTE last week*. This utterance consists of two information blocks, even though phonetically it consists of three breath segments (Grimes 1969). The first has no point of intonational prominence in it, and hence is capable of being taken as part of the third breath segment, forming a two-part information block that is interrupted by the second breath segment. The second segment is itself a complete information block.

Although we have already seen how information blocking is independent of content, the two lock together at certain points. To explain these points it helps to make use of the notion of *markedness*, mentioned earlier in Chapter 8.3. There are many things in language that come in sets: pronouns, vowels, affixes, certain transformations, and many others. In many of these sets there is one member that seems to be used in the absence of any special reason for using one of the others. All the other members of the set have some more specific motivation attached to their use. The members of the set that are picked up under specific conditions are called the *marked* members, while the one that is used by default is called the *unmarked* member.

Information blocks that correspond to single clauses are unmarked in their relationship to content organization.

In English, and in several other languages at least, we make our information blocks the same size as our main clauses unless there is a particular reason for not making the two match. *Bill wrote the NOTE last week*, for example, is a single clause uttered as a single information block.

Embedded clauses are normally considered as informationally part of the matrix clause (that is, the clause within which they are embedded). They are not blocked separately in the unmarked state: *The people who visited us wrote the NOTE last week*. Clauses used as adjuncts to other clauses within sentences, however, are normally split off intonationally rather than being treated like embedded clauses: *Bill wrote the NOTE / as he SAID he would* is the normal form. Both the dependent and the independent clauses are unmarked information blocks in this case.

A *marked* information block is one that does not correspond to an independent or dependent clause. In other words, there is some reason for overriding the natural affinity between clause boundaries and information block boundaries. The most common kind of marked information block covers less than a clause: *BILL / wrote the NOTE last week*. In most speech the average number of information blocks per clause is somewhat greater than one, though less than two.

More than one clause may be included in a marked information block: *Bill wrote the note last week and then he had to leave TOWN*.

The use of marked information blocks implies a judgment on the part of the speaker about the hearer's capacity to assimilate what he is saying. It is related to the fact that each information block has a center that represents the least predictable part of the block; this will be discussed in the next section. If everything that is being said is predictable, the block may be allowed to grow fairly long,[2] as in the last example. On the other hand, a large quantity of new information ordinarily calls for more frequent blocking so as to provide more centers. We have already considered how newscasters and politicians manipulate this blocking principle, the one to play down the quantity of new information, and the other to give the appearance of new information even when there is none.

Marked information blocking may also be used when the speaker wishes to prevent misunderstanding of content structures that are otherwise ambiguous. For example, within a noun phrase there may be postnominal qualifiers that define or restrict the reference of the noun phrase as a whole. These tend to be blocked together with the head noun: The MAN who is over there / is WATCHING us, for example, tells which man the hearer is to attach watching to. Other postnominal qualifiers, however, assume that the hearer already knows what the phrase refers to. They add incidental information, and so are appropriately blocked by themselves: The MAN / who is over THERE / is WATCHING us. A similar pattern of difference between defining the head of a noun phrase and throwing in additional details about it for the hearer's interest is seen in The CHECKS which were ready yesterday / are still on the DESK versus The CHECKS / which were ready YESTERDAY/ are still on the DESK. When the second kind of information block (the so-called *nonrestrictive* relative pattern) is used, the pitch of its intonation contour tends to echo that of the contour that ends on the head word.

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[2] Since information blocking is connected with intonation contours in English and many other languages, physiological constraints on the length of contours can produce the effect of blocking even when the speaker's estimate of his message does not demand the end of a block. The limiting constraint is that the speaker has to take a breath once in a while regardless of his information structure.

Information blocking can also be used to clarify just how far certain adjuncts carry. In general they tend to apply to only one information block. If the adjunct is marked off in a block of its own, then it applies to the block next to it. If it is included within a larger block, then it applies within that block. For example, in On WEDNESDAY / Uncle GEORGE arrived / and we had a PICNIC the sentence initial adjunct is blocked by itself, and so applies to Uncle George's arrival. What day the picnic took place is anybody's guess; it could even have been on Thursday, because the adjunct does not apply beyond the block next to it. A similar effect can be gotten by putting the adjunct inside the same block as the clause it modifies: On Wednesday Uncle GEORGE arrived / and we had a PICNIC.

On the other hand, the adjunct can be applied to both clauses by putting them into a single information block. If we say On WEDNESDAY / Uncle George arrived and we had a PICNIC, or even On Wednesday Uncle George arrived and we had a PICNIC with everything in one block, then the picnic could only have been held on Wednesday because the adjunct is tied to both of the clauses in the block.

There are final adjuncts that work in the same way as the initial adjuncts, but in the opposite direction. *Only*, *neither*, and *too* imply a constituent prior to the one to which they are bound by the information blocking. *They got there late and missed the bus TOO* implies something in the situation or earlier in the discourse to which the current misfortunes are being added; so does *They got there late and missed the BUS / TOO*. If each clause is blocked separately, however, then the first one is the earlier element that *too* looks for; there is no need to scan farther for it: *They got there LATE / and missed the bus TOO*, or the equivalent with *too* as a separate block, *They got there LATE / and missed the BUS / TOO*.

2. INFORMATION CENTERS

Each information block contains at least one **center**. The center is that part of the block in which new information is concentrated. The rest of the block contains more predictable material. In English the center of an information block is identified by intonational prominence, just as the extent of an information block is identified by intonational boundaries. In *The MART / is having a SALE today*, *Mart* and *sale* are the centers of their respective information blocks, and communicate the least predictable information within each block.

Just as the quantity of information that is contained in one block is decided on by the speaker, so the placement of the center is under his control. He has the option of designating the 'part of the message block the speaker wishes to be interpreted as informative', in Halliday's words; he can direct the hearer's evaluation of what is to be taken as new and what as given. He does not, on the other hand, exercise any choice over whether the block will have a center or not, any more than in English he exercises a choice over whether an independent verb will have a tense or not. Something in the block has to be picked out as its center, if only in relative terms.

The decision about what is to be considered relatively new is independent of the constituent structure of the block. It is also independent of the underlying content structure which the constituency reflects. Perhaps we all played games with center placement in childhood, like repeating

MY puppy is black.
My PUPPY is black.
My puppy IS black.
My puppy is BLACK.

All four have the same underlying content, but they differ as to the speaker's decision about informativeness. All are natural in the right contexts.

New information corresponds to the information that could be given as the answer to some question. For this reason questions are useful tools in tracking down information centers. The game is to find a question to which a particular information block is the natural answer.

The search for questions is complicated by a further characteristic of given information, however: answers often leave out part or all of the presupposing statement that is behind the question. _Whose puppy is black?_ for example, can elicit _MY puppy is black_ as an answer under some circumstances, but the familiar principle of deletion recoverability--that anything that can be supplied from the context does not have to be repeated--leads more often to _MINE_ as the answer.

Intonation centers that reflect the answer to a question illustrate center assignment on a **cumulative** basis. The information is new with reference to the text and the situation. *On FRIDAY / CAROL came / and she TOLD me / she wanted to get a JOB* illustrates singling out the center of each block by testing everything against the previous text (so that *she* is never a center but *Carol* is on her first appearance) and against the situation (so that *Friday* fits at an unpredictable distance in time from the day of the speech situation).

Other intonation centers, on the other hand, are placed by **contrast**. They reflect a guess by the speaker that the hearer might understand something wrongly if he applies the normal rules to it. Contrastive center placement can apply to anything at all, while cumulative placement is restricted almost completely to content words, for reasons we will look into later. *I saw HIM* illustrates an information center placed contrastively on an anaphoric word which would never be a center in the cumulative sense. What the contrastive placement means is "be careful--the reference you would understand by ordinary backtracking is the wrong one for this use of *him*; so look for the next most likely referent instead." Contrastive stress on the modal, as in *My puppy IS black*, means "I think you misunderstood an earlier assertion of mine on its positive-negative dimension". It could also be used to clarify a misunderstanding about tense, contrasting with *was*.

An information block may have more than one center under certain conditions. In English the secondary center always follows the primary one as a second point of intonational prominence within the same contour. Usually the second intonational nucleus is not as high in pitch as the first: *They have a CLASS on WEDNESDAYS*.

Secondary information centers are usually used to communicate information that is relatively unpredictable, yet is dependent in some way on the primary center. In *We'll BE there if we CAN* the secondary center *CAN* involves a contingency. In *They cost LOTS you KNOW* the secondary center is a confirmatory tag on the main part of the information block. In the clause final adjunct of *He wrote the LETTER on FRIDAY* the time designation is new, but not as importantly new as the primary center. Each of these secondary centers could, of course, be uttered as a separate block: *We'll BE there / if we CAN* and so forth. The speaker has the option of separating them; but if he chooses to combine them, he is making the second one definitely subordinate in its impact on the hearer.

Another kind of secondary information center could be thought of as halfway between being new by cumulation and being new by contrast. Halliday characterizes this as given information that is 'to be noted'. It appears regularly in thematic tags (22.4) in which the tag consists of given information, as in *He fixed it FAST did GEORGE*.

There is a special kind of secondary information center in which the pitch is not only lower than that of the primary center, but distinctly lower than the general pitch of the rest of the block. In our simplified notation for those parts of intonation that reflect the information blocking system we can symbolize this by a falling arrow before the word: *GEORGE doesn't ↘ THINK so*. This deviation of the pitch line to the low side of normal seems to be used for adding a negative evaluation by the speaker (Donald Hayes, personal communication). It has a special affinity for evaluative words, though it may be used to cast a bad light on something relatively innocuous. In *He REALLY had* a ↘ BAD night only the lowered secondary center fits; try the same statement with GOOD in place of ↘ BAD. On the other hand, The STEAK was ↘ OKAY sounds grudging rather than complimentary.

One wonders, accordingly, about the airline stewardess who announces we HOPE you've ↘ ENJOYED / your FLIGHT with us / and we HOPE to ↘ SEE you again / SOON / on GAMMA ↘ AIRLINES ... Is it because she was trained to use a singsong chant over the public address system, or is this her only chance to express what she thinks of the passengers? Clearly this class of information structures requires further research.

Epithets that are tagged on the end of a clause frequently appear as lowered secondary centers. This is in keeping with their mildly negative meaning: He SAID he'd get here the ↘ SO-AND-SO.

Oksapmin of Papua New Guinea (M. Lawrence ms) has a cohesive structure that handles given and new information in a slightly different way. As in English, the basic information block corresponds to the clause in the unmarked case. Centers, however, come in two varieties. Some centers involve information that is new in the technical sense of being relatively unpredictable in terms of the text or situation. Others are new in that sense; but in addition the speaker considers it appropriate to call the hearer's attention to that newness. Thus in Oksapmin information centers could be thought of as unmarked or marked in terms of how their newness is presented.

The kind of center that is involved in Oksapmin has direct grammatical consequences. Unmarked centers have an inflection pattern called *medial* on the main verb of the clause. With medial inflection no information is given about tense and mode; this is held off until the next marked center comes along. At the marked center, where the speaker is telling the hearer that the new information he is giving him is not only new but worth singling out as new, he employs a *final* inflection pattern. This expresses the tense and mode that apply to the entire string of medial clauses ahead of the final one as well as to the final clause itself. In effect, the final inflection is what indicates the relationship between the speaker and what he is saying, while the medial inflection puts off that question.

Up to now our discussion of centers has been concerned with the number of centers per block. We have considered the fact that contrastively placed centers can go on anything in the block.[3] Now it remains to look into where the center comes in the block when it is cumulative.

This is best explained by working up to it through a series of approximations. The first level of approximation is the observation that unmarked centers usually fall on the last word of a block. The stressed syllable of that word is the one with which the intonational nucleus coincides: *Here are some BOOKS*. The fact that unmarked centers do not always come on the last word will give rise to another round of approximation later. For now let us concentrate on the cases in which the unmarked center is last.

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[3] Contrastive centers can even fit on fragments of words: *The engineers designed this pump to EXpel rather than to IMpel*.

One consequence is the generally valid observation that given information is presented before new information. It lays the groundwork for it, so to speak.

The given-new sequence, however, has a built in point of ambiguity. The longer the block, the more possible division points there are between where the given information leaves off and the new part begins. In other words, we do not know how much the center contains; all we know is where it ends.[4]

There are cases where everything in the information block is new; the center carries all the way back. Blocks of this type are characteristic of the beginning of discourses,[5] especially discourses like telephone conversations and narrations in which situational factors are at a minimum: *Two MEN / were walking down a ROAD / THREE MILES / from BIRMINGHAM* contains a series of information blocks in which all the information is new. Blocks of this kind are typically elicited by nonspecific questions like *What happened?*

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[4] Chafe's rules for assigning *new* status to the elements of a sentence (1970a) miss this point, which really requires discourse conditions on the assignment of *new*.

[5] C. C. Fries (1952) took most of his data from the initial sentences of telephone conversations. He found that they showed a greater variety of structure than later sentences. I would guess that the later sentences make heavy use of cohesive mechanisms, but beginning sentences have to rely on the full expression of content in the absence of given information.

Halliday (1967b) suggests that in some cases information blocks that contain all or nearly all new information may be phonologically distinguished from blocks that begin with given information, provided the whole block is short enough. In English phonology, intonation contours consist of one or more **feet** or rhythmic units. Each unit consists of one to five syllables, and in the main is coextensive with a word. Each foot has one stressed syllable; the rest are unstressed. Halliday notes that some syllables have the rhythm of unstressed syllables, but the stressed syllable they should go with is nowhere to be found. Its place is taken by a pause, the timing of which is equivalent to the timing of a foot nucleus in ordinary speech rhythm. A foot can thus consist either of a stressed syllable as nucleus with peripheral unstressed syllables, or it can consist of a **silent stress** as nucleus with peripheral unstressed syllables. Using an acute accent for nuclei, including the accent by itself for silent stress, and writing a plus sign to indicate rhythmic foot boundaries, we could show the rhythmic substructure of an all new information block as *´ He + wrítes + NOVELS*, with a complete foot as well as one with silent stress in the part before the center.

For a given-new information block, the information center begins somewhere in the middle of the block. It is the last constituent, figuring constituency far enough down the tree of surface grammar that it does not embrace the entire block. This kind of information structure is elicited by specific questions that assert while they query: *What do you have in that SACK?* asserts *you have something in that sack*, so that in the answer anything that entered into the assertion will be given information, and only the contents of the sack will be new: *I have an ORANGE*. Halliday suggests further that for given-new information blocks that are short enough to permit it, the part preceding the center may not contain any full feet, but only one with silent stress: *´ I have + an ÓRANGE*. In answer to a specific question like *Whát does + he WRÍTE?* the answer is likely to be phonologically marked as given-new by its rhythm: *´ He writes + NÓVELS*. This is in contrast with the block of nearly all new information elicited by a general question like *´ What does + he DÓ?*, which is more appropriately answered *´ He + wrítes + NÓVELS*.

Keeping to the approximation that the unmarked center of an information block falls on the last word of the block, it follows that any other placement of the center is marked, implying a special reason for putting it elsewhere than at the end. *ALL the reports have to be in by tomorrow* illustrates a marked placement of the center. It is frequently the first constituent of the block that is marked, especially in cases where the center coincides with a marked theme. As before, placement of the center may be by cumulation or by contrast.

The same ambiguity appears with marked information centers as we had for unmarked centers; namely, we are often uncertain whether the center covers a larger or a smaller constituent. All we know is that the intonational prominence comes on the last word of some constituent. For example, there are two informational readings for *The six kids on the CORNER might have seen them*. The first reading takes the entire noun phrase constituent *the six kids on the corner* as the new part. It could, for example, imply a contrast with *the five adults down the block*. The second reading, however, takes only the prepositional qualifier _on the corner_ as new information. It could imply a contrast with _on the balcony_.

On the other hand, a center like the one in _I've eaten BETTER pizzas_ is unambiguous because the only constituent that ends with _better_ is the word itself.

Marked intonation centers can thus cover rather large constituents or single words. They can also single out fragments of words: _The effect you expect should be an IMplosion, not an EXplosion_.

If we use the question-answer approach to localizing new information, we find that marked information centers are appropriate in the answers to information questions, and correspond to the WH- word:

Q. Who wrote the NOTE?
A. BILL wrote the note.
Q. What did Bill do about the NOTE?
A. Bill WROTE the note.
Q. What did Bill WRITE?
A. Bill wrote the NOTE.

The last answer is also appropriate for the less specific questions that elicit unmarked centers in their answers:

A. What did Bill DO?
A. What HAPPENED?

We began with the principle that unmarked information centers fall on the last grammatical constituent of an information block, but recognized that that statement is only an approximation to the real principle. The placement of information centers is skewed because there are some kinds of constituents that are incapable of being cumulatively new (although they can, of course, be new in the contrastive sense). When these elements come last in an information block the unmarked center comes on the first constituent ahead of them.

The most obvious class of items that cannot be informationally new are *anaphoric* elements. These include both words that point to the earlier part of the discourse and words that point to standard features of the situation of speaking like time, the speaker and hearer, and objects that are under their immediate attention.

The elements that are anaphoric by reference to the text (Halliday uses the word 'substitution' for this relation) include relative markers, demonstratives, pronouns and quasi-pronominal nouns, and other proforms. Relative markers like *whom* in *It's the man for whom you ASKED* are already defined by the head noun, therefore are always anaphoric. They come at the end of information blocks only when the blocks are very short. Demonstratives refer back: *I just SAID that*. (When demonstratives are used cataphorically to refer to something that is yet to be explained, they are not anaphoric and so are quite likely to be information centers.) Anaphoric pronouns like *We already SAW him* are common. Inclusive nouns behave in much the same way as pronouns when they are used anaphorically: *He drives a BEETLE / but his wife prefers a BIGGER car* is anaphoric provided one knows that a *Beetle* is a kind of *car*. To make *car* the information center would constitute either a joke or a confession of ignorance. There are other proforms like *so* that point back anaphorically to parts of the text other than designations for objects: *When will he LEAVE? I think he's already DONE so*.

Other elements are anaphoric in the sense that they refer to things in the situation of speaking that do not need to be pointed out. (Halliday's term for this is 'reference'.) Interrogatives may operate this way: *Which IS it?* is situationally anaphoric when a collection of objects is in view, as in the case of a rental car customer who enters the parking lot to pick up his vehicle. Demonstratives that refer to something already under attention are anaphoric in the same sense: *He won't LIKE that one,* for example, fits the situation of a woman shopping for a necktie for her husband for Christmas when the salesman shows her a particularly garish necktie. Pronouns do not have to be defined textually to be anaphoric; consider a scene in which one golfer walks up to another who is fuming at the tee and says, *Did you MISS it?*, referring obviously to the ball that is still sitting there. Quasi-pronominal nouns can also be situationally anaphoric, as when one person turns to another while inspecting the pits before the Grand Prix race and says, *Looks like a rather FAST car*. Adverbs that take their meaning directly from the situation of speaking are anaphoric and therefore not eligible to be made into unmarked information centers: *Bill wrote the NOTE this morning*, *I wish they'd COME now*, *Let's have a little QUIET here*.

There is also a set of forms that are not in the running to be unmarked information centers even though they are not in any sense anaphoric. These are members of small closed classes of function words like modals, prepositions, and conjunctions. Even though the information in modals, for example, may be new, the modal is not treated as an unmarked information center: *Forgot his WALLET, did he*? Prepositions frequently specify a location or direction more precisely than the general role relationships that form the framework for their use; but that does not qualify them as centers: What tree did you LEAVE it under? Conjunctions like and, or, and but are rarely centers, though scope indicators like both, either, and neither may be treated as new (and may be called for as equivalent to making an information center out of their conjunction): BOTH Peter and Julie came.

In contrast, some words carry new information more often than not. Whenever a situational reference is being defined (as opposed to its being taken as obvious and therefore given) the *deictic* word referring to the situation is new and is the prime candidate to be an information center: THAT'S the one I want (pointing to it), HERE is where we camp tonight (said while standing on the spot). Interrogatives may be treated as centers: HOW is it done? highlights the fact that the presupposition of the question, it is done, is accepted, whereas How is it DONE? treats the whole block as new.

Cataphorically defined demonstratives have reference to something the hearer has not been told yet; they are new in the sense of promising that information will be given later that is to be treated as a unity: THIS is what we demand / an IMMEDIATE CESSATION / ...

Echo questions refer to something that has been asked or answered already. The interrogative element in them is treated as the center; but they are distinguished from ordinary intonation blocks by their continued high pitch after the center. They are questions about an earlier piece of the discourse, and imply that the one who asks should know the information but missed it: WHO did it? (I know you already said who did it, but I missed it), WHAT time did you say it was?

Contrastive information centers, as we have already seen, may locate new information anywhere in a block. Their meaning, however, is of a special kind. It says, 'the interpretation of this element is not what I think you expect it to be'. Thus a modal element may be a contrastive center in they WILL go (even if you say they will not, I assert my positive modal against your negative one). They may point to a reference that is not the ordinary reading for anaphora: THAT'S what I said (not the other thing that I think you are referring to). The switch in reference is seen plainly in the following example (Langendoen 1970):

JOHN / tried to shout to BILL, but
he misunderSTOOD him.
    (Bill misunderstood John)
HE misunderstood HIM.
    (John misunderstood Bill)

Finally, elements that are anaphoric by situational reference may be made into contrastive centers in cases where more than one possible referent is present in the situation: THAT'S the one is appropriate to go along with pointing to single out one of several possible referents for that.

We can return now to the formulation of how information centers are indicated in English by intonation. Recognizing that some elements inherently go with given information, we can say first that cumulatively new information is contained in the constituent on whose final accentable foot the nucleus falls. This leaves us with a potential ambiguity in that, since constituents may be embedded one within another, we may not know whether we are dealing with, say, a whole sentence or a single word. We also must stipulate that normally, accentable feet exclude anaphoric items and small closed system items. If on the other hand, the information is new in the contrastive sense, the center may fall on anything.

3. OVERLAYS

In working on several unrelated languages I became aware of a pattern of handling new information that does not fit Halliday's given-new paradigm too well (Grimes ms). This pattern was first called to my attention by educators and others who found that speakers of some languages insisted on what to the educators was a prolix style that involved going in multiple cycles, each of which said approximately the same thing.

On looking further it became apparent that a tightly structured rhetorical pattern was involved, but one that was constructed on different lines than the patterns with which I was more familiar. One could say, in an approximation to Halliday's terms, that these structures (which I have labeled *overlays*) distinguish three kinds of information: given, new, and *highlighted*. So far all the overlay patterns I have seen have been related to event sequences.

The overlay technique involves putting together two or more *planes*, each of which constitutes a narration of the same sequence of events. The first plane consists largely of new information. The second plane, and others that follow it, begin the sequence over each time. Furthermore, they consist partly of new information that is being given for the first time in that plane, partly of given information such as that which is referred to anaphorically, and partly of information that is being repeated piecemeal from an earlier plane. This repeated information has a special status; it is the highlighted information that ties the whole overlay together. Informationally it is the backbone of the whole structure. One could think of the highlighted information that carries through from plane to plane as information that is being made to stand out by being placed in slightly different environments, just as a stereoscopic visual image makes the foreground objects stand out by relating them to slightly different backgrounds.

For example, in a Bororo text reported by Thomas H. Crowell (ms) we could list the actual sequence of events that are narrated as follows:

A A calf and its mother arrive in Colonia.
B I arrive in Colonia.
C My companions run to me.
D The Brazilians, the Bororos, and my companions say the calf is mauled and I should go to it.
E I say the calf will not die.
F I go to the calf.
G I see the calf lying beside the machine and the mother standing nearby.
H The calf dies.

If we arranged the events along the time line, following Litteral's idea of an index, they would come out in order ABCDEFGH as listed. They are not, however, told in that order. The planes of the overlay are

1 B D G
2 D F G
3 C D F G H
4 A E H

We notice first that within each plane the action proceeds in time sequence, while between planes it backs up. The first three planes are tied together by D G, the last two by H--in other words, in the first part of the overlay the speaker is highlighting D G (between 1 and 2), then expanding the highlighted part to D F G (between 2 and 3), then shifting to H (between 3 and 4).

Ivan Lowe (personal communication) has pointed out that when we extrapolate from the relationships that are present in the actual telling, we find a surprising consistency. This consistency can be seen by representing the text in *topological* form as follows.[6] Each of the four tellings of the story is taken as a subset of the universal set ABCDEFGH that describes the total series of events. These four tellings are considered *open sets* in the topology. The rest of the topology is filled in according to the following three principles: (1) The universal set and its complement, the null set (∅), are in the topology. (2) For any two open sets in the topology, their union is also an open set in the topology. The union of two sets is a set that contains every element that occurs in either of the two; the union of DFG and BDG is BDFG. (3) For any two open sets in the topology, their intersection is also an open set in the topology. The intersection of two sets is a set that contains only elements that occur in both of the intersecting sets; the intersection of DFG and BDG is DG.

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[6] A topology is one way of representing relationships that may or may not fit into the tree structures that linguists are most familiar with. See the references to topology in Chapter 3.

The nineteen open sets in the topology all fit this picture. Listed by the number of elements in them, they are (underlining the original sets)

Ø
H
DG
AEH DGH *DFG* *BDG*
BDGH DFGH BDFG
ADEGH BDFGH *CDFGH*
ADEFGH ABDEGH BCDFGH
ACDEFGH ABDEFGH
ABCDEFGH[7]

Given the four *generating sets* of the topology, there are exactly nineteen open sets in the topology. On the other hand, there would be a possibility of having a topology that includes all subsets of the universal set if we had different generating sets. The maximum number of sets in a topology on eight elements is $2^8 = 256$ sets; a topology that contained all of them would be called the *discrete* topology. How is it that less than a tenth of the sets that would be present in the discrete topology actually turn up in the topology related to this discourse?

If we read back the open sets in the topology as possible tellings of the tale or planes of an overlay, we see that each one is a valid plane. On the other hand, sets that are not in the topology (such as AB or CH, for example) do not fit the picture; they are out of joint as expressions of the story. (The relevance of a telling becomes even clearer if we look at the context of the story. In this case the narrator was documenting a request for hunting dogs to help control the depredations of jaguars, first by establishing himself as an attested eyewitness using the DG complex, and second as having suffered a personal loss using the H complex.) The topology thus expresses a kind of internal coherence that is far from a random selection of possible tellings. What the nature of this coherence is needs to be explored in detail; the topology simply gives us a means of recognizing that it is there.[8] In languages that do not make use of overlay we have no way of approximating this kind of structure.

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[7] We can observe that this topology has a *base* consisting of the four generating sets together with Ø, H, and DG. Every set in the topology can be formed by the union of sets in the base.

Some languages make little or no use of the overlay mechanism. Formal English does not use it, though I have detected snatches of it in the kind of oral discourse that we characterize informally as going 'round and round'. I have also picked it up in conversational Mexican Spanish--always when I have no tape recorder with me. Alan Healey has suggested that portions of the Bible like Judges 20:29-48 are overlays.

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[8] There may be other valid tellings of the tale that are not in the topology but lie close to it in the sense that the generating sets that would have to be added would intersect so thoroughly with the existing topology that the total number of sets would not increase by very much. We can thus consider three distinct topological representations of a narrative: (1) The topology derived from a telling without overlay, which would consist of only the null set and the universal set; (2) the topology derived from an overlay, as presented here, which has as its limiting case (3) the topology derived from all possible overlays, which would contain all possible relevant planes and no irrelevant ones.

In English we do have patterns of summarizing and abstracting that look superficially like overlays. In an initial or final summary or an abstract, however, the only information that appears is what is also in the body of the text. No new information can be introduced. In topological terms the body of the text would be identical with the universal set. In all likelihood the only other sets in the topology would be the summaries or abstracts themselves, since their unions and intersections would not yield any new sets.

The difference between an overlay and a summary is thus that in an overlay each plane introduces some new information at the same time that it highlights information that each new plane after the first has in common with earlier planes. There is no plane that acts like the body of a text that includes a summary in being equal to the universal set. Instead the universal set of an overlaid text is built up by union of the planes.

4. INFORMATION RATE

We have already considered the rate of introduction of new information as a factor in determining the length of information blocks. A high rate tends to go with many short information blocks. It also seems to go with a generally low reliance on anaphoric means of maintaining reference. In other words, when the information rate is high, speakers tend to rename and reintroduce things rather than to employ complex means of keeping track of who did what.

On the other hand, some languages seem to favor a more leisurely rate of information introduction. Many of the languages of New Guinea, for example, use techniques like linkage (20.3, Thurman ms) and overlay in a way that keeps the information rate generally low. They tend at the same time to exploit the mechanisms of anaphora, and to permit fairly long information blocks. Saramaccan (Grimes and Glock 1970) seems to have a fairly low average rate of information introduction, and it is possible that casual styles in most languages show this kind of increased redundancy when compared with more formal or business-like styles.

It should prove instructive to analyze the effect of writing on languages whose normal information rate is relatively low. Although good writing does not require that the reader scan back to pick up what he is not given redundantly, the nature of the artifact freezes the preceding context so that it is there if the reader wants to go back to it.

In writing for new literates or in training writers to produce material for new literates, it might be worth considerable effort to try to match information blocks with eye spans, so that each chunk that is read (once the reader gets past the syllable-by-syllable or word-by-word barrier) is informationally complete.

CHAPTER TWENTY

IDENTIFICATION

[Linguistic reference is expressed by various forms of identification at various degrees of explicitness. This chapter introduces the concept of the referential field, which is related to perception on the psychological side and to quantification and definiteness on the linguistic side. Identification is related to cohesive structure both in regard to forms of substitution, anaphoric and cataphoric, and in regard to viewpoint. Time as a factor in identification is developed from the initial discussion in Chapter 3.]

CHAPTER TWENTY-ONE

STAGING

Every clause, sentence, paragraph, episode, and discourse is organized around a particular element as its point of departure. It is as though the speaker had a strategy of presenting what he wants to say from a particular perspective. I find it convenient to think in terms of how various units are **staged** for the hearer's benefit. This staging is at least partially independent of both content structure and cohesive structure. It operates at many levels of text organization.

In choosing a term like 'staging' I am trying to break out of a terminological bind. We have the words 'topic', 'focus', 'theme', and 'emphasis' appearing freely in the linguistic literature, but with such broad ranges of overlap and confusion that they are nearly useless. I hope not to add to the confusion, but rather to help map a way through the phenomena we are trying to describe. My choice of terms like 'information block' and 'center' in Chapter 19 fits in with this attempt, since the words we are concerned with have also been used for the phenomena of cohesion.

In the area of staging I have found it useful to continue the general strategy of distinguishing semantic choices from the phenomena involved in communicating those choices. For example, in discussing content structure I have distinguished predicates, which express content in an abstract way, from nouns and verbs that are used to express that content. In cohesive structure I have distinguished information blocks and centers from the intonational boundaries and nuclei which in English are used to communicate the extent of the blocks and something about the placement of the centers.

In discussing staging I wish to maintain a parallel distinction between the semantic choice of a **theme** or point of departure on the one hand, and the designation of a constituent in the grammar as the **topic** by means of appropriate signalling devices. In *my dog has fleas*, for example, there is a choice to treat the Patient as theme. This is implemented by putting it first, which makes it the topic. If the thematic choice fell on *fleas* instead, the same topicalizing mechanism would be invoked, giving *fleas my dog has*.

It is evident that thematic choice is independent of content structure; both the examples in the preceding paragraph have the same predicates and arguments. Thematic choice is also independent of the cohesive structure. Although a marked topic (i.e., a topic that is not the subject in a declarative sentence) is frequently new as well, as in *FLEAS my dog has*, it can also be given, as in

A: I wonder where I can get some fleas for my biology experiment?
B: Huh! Fleas my DOG has.

1. THEME AND MODALITY

English uses word order in several ways. This makes it sometimes difficult to untangle all the factors that are involved in a particular ordering. Because the staging of a clause and its mode are two of the main factors, we will begin by attempting to separate out mode from clause topicalization.

As in cohesion, so also in staging it makes sense to talk about unmarked and marked patterns of staging. In English the unmarked theme in clauses[1] depends on the mode.

The content structure that corresponds to a clause contains at least one lexical predicate and its role related arguments. The consolidation transformation (Chapter 13) gives a clause a single dominating predicate, which may be semantically complex, and retains role related arguments, though it may delete some and reassign others. There is then a mapping rule that assigns one of the arguments to the subject category and others to other surface functions. This rule is part of the staging system; it interacts with the selection of mode to give unmarked word order, and has other semantic inputs that give distinctions of voice.

Mode in English is expressed by the way the subject, selected on this basis, is related to the modal elements largely independently of the rest of the clause. In the declarative mode the subject precedes the modal element, which may be carried by the main verb as in _Max ate the_ apple or by an auxiliary as in Max hasn't eaten the apple. The subject is the unmarked topic. In independent clauses a subject must be present; so strong is this requirement that English uses dummy subjects where none is supplied by the mapping from the role system: It's raining, there is a possibility that we will leave a week early. In terms of the modal system, the declarative is without doubt the unmarked mode.

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[1] I speak of clauses here rather than sentences because, for complex sentences at least, there is a separate set of thematic options. _I'll go if they invite me_ and _if they invite me I'll go_ are thematically different sentences, each clause of which is thematically unmarked.

In the polar interrogative mode the modal element is itself the unmarked topic, and the subject follows it. In contemporary English the topicalization of the modal requires the use of an auxiliary, as in Did Max eat the apple? (In earlier English the main verb could have been moved as a carrier for the modal: Ate Max the apple?) The rest of the clause following the modal gives the area of uncertainty that the modal questions, and implies a disjunction. If the disjunction is not spelled out, it is taken to be between a positive and a negative value: Either Max ate the apple or Max did not eat the apple; tell me which. A disjunction that is not on yes-no lines must be spelled out: Either Max ate the apple or Max ate the orange; tell me which, with its less redundant form Did Max eat the apple, or the orange?

The nonpolar interrogative has as its topic a WH or question element. The rest of the clause states the presuppositions or background assumptions that will be considered acceptable in an answer. Who ate an apple?, for example, sets as grounds for answering the agreement that somebody ate an apple. The presuppositions even extend into the word that contains the WH element, since who implies that a person ate the apple and what implies that the eater was not a person.

Nonpolar interrogatives like who, what, when, where, why, and how focus the answer on clause and sentence constituents. Which and how many, on the other hand, point to the determiner element of some noun phrase within a clause: Which student did the best work this semester? Nonpolar interrogatives of either kind can be raised out of embedded clauses: Who did you say I ought to send the letter to? Prepositional phrases with nonpolar interrogatives may also function as topic in relation to the modal; To which senator did you say I ought to send the letter?

The verb itself is unmarked topic in the imperative mode, and the subject is deleted as predictable from the mode: Eat an apple today.

Dependent clauses have their introducer word as unmarked theme. Following it, however, a few thematic options (though no mode-related ones) are still possible, enabling things like I'll talk to him because me he respects.

Whenever anything is put first in the clause other than the element that normally signals the mode, it constitutes a marked topic in English. This kind of thematic marking is most common in the declarative mode, which is the unmarked member of that set; in other modes, the unmarked topic is less frequently preceded by anything: This picture I want for the living room (declarative), Max did he eat an apple? (polar interrogative), The carpenters what did they finish today? (nonpolar interrogative), You guys clear out. (imperative), Me if I get there I'll phone you. (dependent). Note that where the subject is a marked topic, a pronoun is left behind in its regular position to prevent loss of the modal information that depends on the order of subject and finite verb form.

Clearly the marking of thematization is related to a semantic factor of prominence. It is as though in a play directions were given to the spotlight handler to single out a particular individual or an action, or one actor were placed close to the audience and another off to the side. In fact, staging metaphors appear to be highly appropriate for the marked varieties of a whole range of linguistic phenomena that have a long history of being hard to handle.

One such area is the semantic relations that I have spoken of in connection with proposition consolidation (11.2). For example, both the similarity in meaning and the difference in form between used pliers to bend the wire and we bent the wire with pliers can be expressed by saying that in the first example the staging involves a prominence factor on the abstract instrumental predicate. This prominence of staging blocks the consolidation transformation that normally yields Instrument as a role as in the second example.[2]

Another area where staging seems to be at work is in the decision about what to embed and what to make grammatically independent. The propositions (*man* (E x)), (*enter* (A x) (R y)), and (*store* (E y)) combine in more than one way: *The man entered the store*, *the store was where the man entered*, *enter the store the man did*.[3] In relation to other propositions we might also have *the man who entered the store*, *the store's entry by the man*, *entering*, and a number of other forms. Given a collection of propositions that are interconnected by shared references, the speaker's decision about what is, so to speak, front and center on the stage, what is present in a secondary way, and what is unimportant enough that it need not even be mentioned, is a thematic decision. Looked at in this light, we see that staging affects much more than topicalization.

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[2] If prominence explains failure to consolidate, this moves the area of difficulty over to characterizing the difference between we used pliers to bend the wire, with pliers we bent the wire, and pliers we bent the wire with. In the first of these prominence attaches to the predicate underlying use, and in the last to pliers; but in the second either it goes with the entire proposition (use (A we) (P pliers) G), or there is a better explanation yet to be found that will also show the semantic similarity shared by all these sentences.

Quite a few languages use sentence initial adjunct clauses as part of their staging. Thurman (ms) discusses the general process of **linkage**, in which a clause that describes an event is repeated to provide the point of departure for the next event. The repetition may be verbatim, or it may take a reduced or dependent form. Like **asyndeton** or absence of a conjunction in Greek, the lack of a linking clause may signal a thematic shift. A typical example of linkage is cited by Ronald Lewis from Sanio-Hiowe of Papua New Guinea (ms) *Krismasi ta saro uriye. Krismasi ta saro uriye, teitiye sosu a'i masta nomo eimawiye pranteisin. Nomo eimawiye, nomo ta apo inawe*. 'We were here for one Christmas. **We were here for one Christmas**; then the boss sent us to the plantation. **He sent us**; we went to it.' Stout and Thomson (1971) cite entire paragraphs repeated as linkages in Kayapo of Brazil.

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[3] There are also propositions related to the speech situation and cohesion that influence the form of these examples: (*know* (X *you*) (P x)), (*know* (X *you*) (P y)), (*inform* (A *I*) (G *you*)), (*precede* (P *enter*...) (R *now*)), and possibly others.

In one sense a linkage is the topic of the sentence it introduces; yet the main clause of the sentence may have its own internal topic. I am not sure whether this is parallel to dependent clauses in English, where the relator word is the unmarked topic but secondary thematic options are also available within the clause, or whether on the other hand the sentence topic and the clause topic are independent.

Nonanaphoric connectives like _and_ and _but_ appear to be athematic even though they are initial. They are followed by the full range of thematic possibilities for clauses, which establishes them as outside the system. Some discourse level connectives like _first_, ... _second_, ... may go with chunks of speech much larger than clauses, but they also appear to be athematic for the same reason.

In between athematic elements like these and fully thematic things like object topicalization, there seems to be a range of semithematic introducers that restrict some of the possibilities of what can be topicalized after them but leave others open. We have already considered subordinating conjunctions like _although_ and _because_ in this sense. Linkage clauses appear to impose mild restrictions in some languages. Modally oriented introducers like _perhaps_ have a similar effect.

2. THEME AND COHESIVE STRUCTURE

The best way to show the independence of theme from cohesion is by displaying a series of paradigms adapted from Halliday (1967b). Each paradigm gives one mode: declarative, polar interrogative, and non-polar interrogative with a WH-word as subject. The first block in each paradigm gives the unmarked theme for that mode, and within that thematization gives the corresponding unmarked information center and subject, verb, object, modal, or pronoun as marked information centers. All examples consist of a single clause that is unmarked with respect to information blocking; that is, one clause, one block.

Unmarked theme = subject
Unmarked center John saw the PLAY.
Marked center: S JOHN saw the play.
Marked center: V John SAW the play.
Marked center: O ambiguous with unmarked center.

Marked theme = verb
Unmarked center Saw the play did JOHN.
Marked center: V SAW the play did John.
Marked center: O Saw the PLAY did John.
Marked center: S ambiguous with unmarked center.

Marked theme = object
Unmarked center The play John SAW.
Marked center: S The play JOHN saw.
Marked center: O The PLAY John saw.
Marked center: V ambiguous with unmarked center.

Figure 21.1. Staging and cohesion, declarative mode.

Unmarked theme = modal

Unmarked center Did John see the PLAY?
Marked center: S Did JOHN see the play?
Marked center: V Did John SEE the play?
Marked center: M DID John see the play?
Marked center: O ambiguous with unmarked center.

Marked theme = subject

Unmarked center John did he see the PLAY?
Marked center: S JOHN did he see the play?
Marked center: V John did he SEE the play?
Marked center: M John DID he see the play?
Marked center: Pr John did HE see the play?
(note that the center is a residue of topicalization.)
Marked center: O ambiguous with unmarked center.

Marked theme = verb

Unmarked center Saw the play did JOHN?
Marked center: V SAW the play did John?
Marked center: O Saw the PLAY did John?
Marked center: S ambiguous with unmarked center.

Marked theme = object

Unmarked center The play did John SEE?
Marked center: S The play did JOHN see?
Marked center: O The PLAY did John see?
Marked center: M The play DID John see?
Marked center: V ambiguous with unmarked center.

Figure 21.2. Staging and cohesion, polar interrogative mode.

Unmarked theme = subject

Unmarked center Who saw the PLAY?
Marked center: S WHO saw the play?
Marked center: V Who SAW the play?
Marked center: M Who DID see the play?
Marked center: O ambiguous with unmarked center.

Marked theme = verb

Unmarked center Saw the play did WHO?
Marked center: V SAW the play did who?
Marked center: O Saw the PLAY did who?
Marked center: S ambiguous with unmarked center.

Marked theme = object

Unmarked center The play who SAW?
Marked center: O The PLAY who saw?
Marked center: S The play WHO saw?
Marked center: V ambiguous with unmarked center.

Figure 21.3. Staging and cohesion, non-polar interrogative mode, WH- = subject.

Before he reacts to the examples in Figures 21.1, 21.2, and 21.3 as bad English, as many do the first time they encounter them, the reader should observe his own thematizing behavior for a day or so. Our grammatical tradition is heavily biased toward regarding unmarked thematization as well behaved and proper, and viewing marked thematization as aberrant. No so; it is part of the language, used constantly, related systematically to the rest. In fact, many of the phenomena written off in grammars as free word order are thematic.

Marked topics are likely to be blocked separately rather than be included in the same block with the rest of their clause as they are in the three figures. The subject and the object are most likely to be blocked separately; other adjuncts moved to the front are less likely to be separate information blocks. For these adjuncts, as has already been mentioned (19.1), blocking is a means of making their scope explicit.

When the marked topic is a separate information block, the block that follows it may begin with a foot that contains a silent stress: *Ten + DOLLARS / ´ he + tried + to CHARGE me*.

3. VOICE

Voice has to do with the relationship between staging and content. We have already mentioned the mapping rules that relate content structure to surface grammar by assigning one role as subject and other roles as other clause functions. We have also seen that in English (and in some other languages as well) the subject element is tied up with the expression of mode--for imperative, no subject; for polar interrogative, modal before subject; and for declarative, subject before modal.

The unmarked mapping that relates the Agent role (when present; otherwise some other role) to subject, which in turn is related to topic via the modal system, is called the *active* voice. In the active sentence *George brought these pickles,* *George* is in the Agent relationship to *bring* in the content structure, and is at the same time the subject in relation to the mode and the surface form.

The marked mapping pattern dissociates the Agent from subject position and thus from unmarked theme and mode. At the same time it leaves the theme unmarked. In this *passive* mapping the Agent is treated in one of two ways that are not as easy to handle in the active voice. In the first instance the Agent can be treated as new information, made the center of an information block, but an unmarked center: *These pickles were brought by GEORGE*. In the second instance the Agent is left out, either because it is vague as in *the city was bombed* or because it is irrelevant as in *I was just told that my uncle died*.

Other nominal elements can be made the unmarked topic in the passive voice; thematic status is not restricted to whatever role maps to the grammatical object: *These strawberries were given me* and *I was given these strawberries* are equivalent in content but different in staging.

The nonagentive derivation discussed in Chapter 9 is distinct from the passive in English. While the passive retains its agentive meaning even when the Agent is omitted, the nonagentive leaves out the Agent explicitly, giving us pairs like the houses were sold (by someone) versus the houses sold, or the door was opened versus the door opened. Where the mapping patterns do not include a voice distinction, as in Huichol, the nonagentive may appear to be the closest translation equivalent to an English or Spanish passive; but there is no way an Agent can be brought into the same clause.

Many languages of the Philippines have an inflectional pattern called focus for topicalizing within a clause. The clause typically consists of a verb followed by a subject, an object, a referent, an associative, and in some languages a fifth adjunct that does not participate in the focus system. Every independent verb is inflected for focus on one of the four adjuncts: in most of the languages the inflection is ma- or the infix -um- for subject, -en or -on depending on the language for object, -an for referent, and i- or pag- for associative. The focused element in the clause is either taken from a special set of topic pronouns or, if it is a noun phrase larger than a pronoun, is introduced by a special proclitic to show that it is the topic of the clause. In relation to the clause order has nothing to do with signalling what the topic is. In relation to the sentence and paragraph, however, putting an element (not necessarily the one that is clause topic) ahead of the verb topicalizes it for a more extensive stretch. The focus system is different from a true voice system, although it has been dubbed that more than once; but there is only one set of mapping rules involved in subject selection. If an Agent, for example, is present, it can never be anything but the subject. Some of the languages use a nonagentive form that, unlike the typical nonagentive of the Western Hemisphere, leaves open the question whether the Agent is absent because it is redundant or because there is no Agent in the semantic picture at all.

4. STAGING AT VARIOUS LEVELS

We have considered whether embedding and subordination in surface grammar might not express the results of thematic choices. The whole dimension of structural coordination and subordination in discourse--of how we decide what goes where--seems to be related to the concept of staging at least as much as to the organization of content. One could even suggest that hypotactic rhetorical predicates (14.2) are a part of content structure onto which staging decisions are mapped.[4]

Within the clause we have seen that thematic choices have two kinds of effects: subordination of some elements, and ordering of others. Voice distinctions in some languages and focus in others also appear to be controlled by the speaker's choice about how he wants to present what he has to say.

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[4] It is quite possible that both cohesion and staging, though ultimately not dependent on content structure, are projected on it. For example, the decision to talk about a particular referent could be expressed by attaching a feature topic to parts of the content tree that have the index of that referent. This then implies that the ordinary transformations of language operate on a representation of the result of linking content, cohesion, and staging together into a single structure, while an earlier set of transformations whose form has not yet even been sketched operates on the separate representations to link them.

Sentences represent a different range of thematic options. *Linkage* systems like those of Sanio-Hiowe and Kayapo maintain a thematic continuity by having a new sentence start from the repetition of the one that preceded it. *Chaining* systems, found mainly in the highlands of Papua New Guinea, point ahead rather than back to maintain thematic continuity by predicting whether or not the subject of the next verb will be the same as the subject of the current one.

Kalinga of the Philippines (R. Gieser ms) allows the sentence to have a topic, shown by putting the topic ahead of the verb, that may be different from the topic of its principal clause as shown by focus inflection. Bororo of Brazil begins many sentences with a linkage-like element that gives the point of departure for the sentence; but unlike a typical linkage it may single out not only the main clause of the preceding sentence, but also any other clause or noun element or location.

Paragraphs also have topics, and these themes may be independent of the topics of their component sentences. The paper by Menno Kroeker on Nambiquara of Brazil that forms the appendix to this book illustrates the kind of linguistic bookkeeping that allows hearers to keep track of several levels of staging at once.

Munduruku, also of Brazil but unrelated to Nambiquara, uses change of theme to divide a text into paragraphs. A particle announcing that the theme is to be changed introduces the first sentence of a new paragraph. The object or goal of the next main verb is the new theme (Sheffler ms). In Ivatan of the northern Philippines, Hooker (ms) reports that the theme of a paragraph is usually the subject of the first independent clause of the paragraph, though two paragraphs may have the same theme and be broken by a discontinuity in the time or space setting.

Ilianen Manobo of the southern Philippines (Wrigglesworth ms) has a highly developed narrative form in which there is thematization by **episodes** as well as by paragraphs and smaller units. In episodes the topics are participants in the plot. They are introduced by set formulas: *Hane **diya**' te pe' ma te kenakan ne mevantug*. 'Note: **there** we are now with the young man who was famous.' 'there' introduces a character formally for the first time, even when he has been mentioned before in passing. 'Here', on the other hand, brings back as topic a character who has already been the topic of an earlier episode: *Engkey pe' be imbe iya te riya' te pe' **kayi** te raha*. 'What but indeed there we are **here** with the young woman.'

Bacairi of Brazil (Wheatley ms) has a pronominal system that distinguishes thematic third person referents from athematic ones with reference to the clause. Both kinds are further divided into focal and nonfocal varieties. David Cranmer (personal communication) suggests that the focal category may represent a higher level theme, on the order of a paragraph theme.

Entire discourses frequently have identifiable topics. Kroeker's study of Nambiquara illustrates this. It lies behind Aristotle's observation that 'necessarily, you state your case, and you prove it' (*Rhet*. 3:13). The title of written discourse is a form of topicalization.

CHAPTER TWENTY-TWO

TOPICALIZATION

[Several linguistic devices are used to topicalize parts of a discourse. Position and inflection were mentioned in Chapter 21. Demonstratives have special uses in topicalization. Clefting is used in thematic identification, a rather widespread topicalizing device related in structure to question formation. Extraposed thematic identification, tagging, and reprise are other common devices.]

CHAPTER TWENTY-THREE

VARIABILITY

[While so-called freely varying phenomena do turn out often to communicate distinctions that linguists had simply not been aware of, there do seem to be some things in language that are communicated by statistically perceivable mass effects rather than by specific elements or arrangements. The variable frequency rules discussed by Labov and by Fasold are an instance of this. Mass effects can be incorporated in the kind of grammar given here by means of the concept of parametric predicates.]

CHAPTER TWENTY-FOUR

POSTSEMANTIC SHAPING

[There is a difference between an underlying representation that characterizes the meaning of a discourse and one that can be related directly to its form. This is expressed as an intermediate stage. Meaning elements that do not directly express the speaker's choice, yet are entailed by his choice, influence the surface form of discourse and are brought into the discussion here. In the opposite direction, some choices the speaker makes are neutralized (Chafe 1970a) in certain environments. Information about the speaker-hearer situation (Chapter 5), which semantically occupies the highest nodes of a discourse, is brought down and attached to many lower nodes by a saturation process. Certain kinds of information, such as setting and staging information, trigger or block the consolidation of propositions and the formation of elements in the surface hierarchy, including sentences.]

CHAPTER TWENTY-FIVE

LINEARIZATION

[The actual arrangement of linguistic elements in temporal order is separate both from the choice of what to say or the postsemantic shaping of it. This is the point at which decisions about staging and cohesion yield an explicit ordering of content elements.]

CHAPTER TWENTY-SIX

OUTPUT

[This is a sketch of lexicalization, the kinds of transformations that take care of housekeeping details, and the specification of pronunciation or spelling. These topics are all discussed thoroughly in the literature; this chapter simply points out where they fit this picture.]

CHAPTER TWENTY-SEVEN

METHODS OF RESEARCH

[This chapter pulls together the suggestions made throughout the report on organizing and displaying data for discourse study: outlining, span analysis, cohesion analysis, clause permutation, substitute permutation, and frequency analysis.]

CHAPTER TWENTY-EIGHT

LOOKING AHEAD

[A discourse grammar implies the ability to parse discourses and to simulate the production of discourses. This chapter discusses prospects of working in this mode. It also indicates ways in which linguistic studies of discourse might influence other fields.]

APPENDIX A

THEMATIC LINKAGE IN NAMBIQUARA NARRATIVE

Menno H. Kroeker

(This paper explores some of the evidence that staging applies at several levels. JEG)

INTRODUCTION

The linkage system employed between sentences, paragraphs, and themes is one of the more complex elements in the analysis of Nambiquara[1] narrative. It involves sev-

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[1] Nambiquara was classified by McQuown and Greenberg as in the Ge-Pano-Carib Phylum of languages (Sol Tax, 'Aboriginal languages of Latin America', Current Anthropology 1:5-6.431-436, Sept.-Nov. 1960). There are approximately 200 speakers of Nambiquara in northwestern Mato Grosso, Brazil. The number of dialect groups remains uncertain at present. The data for this paper were gathered on field trips to Nambiquara villages between the years 1961 and 1970 in accordance with a contract with the Museu Nacional do Rio de Janeiro and with the cooperation of the Fundaçao Nacional do Índio. The present paper was written under the auspices of the Summer Institute of Linguistics at a field workshop held in 1970 at Cuiabá, Mato Grosso, Brazil, under the direction of Joseph E. Grimes.

A concordance of 21,960 morphemes taken from Nambiquara texts was used in the analysis done for this paper. The concordance was prepared at the University of Oklahoma Computer Laboratory under the Project for Computer Support for Linguistic Field Research, partially supported by National Science Foundation Grant GS-1605.

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eral sets of connectors depending on the element to be linked, i.e. whether one is referring to sentences, paragraphs, or larger discourse units.

TYPES OF LINKAGE

Sentence linkages are most numerous. Some linkages indicate relative ordering of events in relation to time as follows.[2] *Simultaneous*: xãu^{3}xain^{1}tị^{3}kxai^{3}lhu^2 a^{2}lũ^{1}a^2 a^{3}li^{3}na^{2}hẽ^{3}ra^2 ('sleep-they-while tapir left-past') 'While they were sleeping the tapir left.' *Following*: xĩ^{3}yai^{3}nain^{1}nu^{2}la^2 ai^{3}ain^{1}na^{2}hẽ^{3}ra^2 ('eat-they-after hunt-they-past') 'After they had eaten they went hunting.' *Punctiliar*: xwã^{3}ain^{1}tãu^3 ya^{2}na^{1}la^2 ĩ^{2}ain^{1}na^{2}hẽ^{3}ra^2 ('arrive-they-when jaguar see-they-past') 'Upon arriving they saw the jaguar.'

Other linkages indicate logical relationships. *Cause and effect*: xũh^{3}wị̃^{3}ai^{1}nha^{2}kxai^3 kã^{3}txa^2 xĩ^{3}yai^{3}nain^{1}tu^{1}wa^2 ('plant-they-because later eat-they-future') 'Because they planted, later they will eat.' *Contrary to fact conditional*: xĩ^{3}xi^{2}ke^{3}la^{3}te^{2}kxai^3 xĩ^{3}yai^{3}nhĩ^{3}na^{1}wa^2 xyãn^{1}ta^1 xĩ^{3}xi^{2}xna^{3}wa^2 ('come-if eat-would-I but come-not') 'If he would come I would eat; but he hasn't come.'

Still another type of linkage adds aspects of modal logic in a similar manner to those listed above. *Supposition*: xĩ^{3}xi^{2}na^{3}na^1 hãx^{2}xwã^{3}txa^{3}nu^2 xwa^{3}na^{1}tu^{1}wa^2 ('come-supposition later go-I-future') 'If he comes (as supposed), later I will go.' *Intention*: wa^{3}ko^{3}na^{1}kxãi^{2}nãn^{2}tu^3

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[2] The phonemes of Nambiquara are *p*,*t*,*k*,*d* (implosive alveolar stop), *x* (glottal stop), *j* (alveopalatal affricate), *n* (with six allophones: [m] after nasalized vowel glide *au*, [bm] after oral vowel glide *ãu*, [gŋ] preceding a velar stop and following an oral vowel, [ŋ] preceding a velar stop and following a nasalized vowel, [dn] on all other occasions following oral vowels, and [n] on all other occasions following nasalized vowels), *N* (voiceless nasal), *ř* (only in the final syllable of the independent verb), *l* (ř after front vowels, l after all other vowels), *s*, *h*, *w*, *y*. Vowels occur in oral and nasalized series (written with tilde Ṽ): *i*, *e*, *a*, *o*, *u*, and two vowel glides *ai* and *au*. Both series of vowels also occur laryngealized, indicated by a hook V̨ under the vowel letter. There are three tones in Nambiquara indicated by raised numbers ^{1} ^{2} ^{3} at the end of every syllable. ^{1} is a downglide, ^{2} is an upglide, and ^{3} is a low level tone.

yen^{3}kxa^2 so^{1}kxi^{3}na^{1}tu^{1}wa^2 ('work-I-intention things earn-I-future') 'If I work (as intended), I will earn things.'

In all of these examples the linkage is attached to the verb in place of the tense element that occurs in the verb of all independent clauses. Independent verbs always occur in the final clause of a sentence, and dependent verbs in the non-final clauses. Only the verb to which the linkage is attached and the following independent verb are involved in the relationship implied by the linkage. The persons of the verb are suffixed to the independent verb after the stem and before the tense element, or before the linkage element in the case of the dependent verb, to indicate the subject. A pro-verb may be substituted for the dependent verb.

A sentence linkage may also be an inflected free form (i.e. unattached to verbs) between two independent clauses. The reference in such cases is not limited to the immediately preceding clause. It could refer to several closely related clauses. xĩ^{3}yai^{3}nain^{1}na^{2}hẽ^{3}ra^2 ain^{1}nu^{2}la^2 ai^{3}ain^{1}na^{2}hẽ^{3}ra^2 ('eat-they-past they-after hunt-they-past') 'They ate. Afterward they went hunting.'

Paragraph linkage, on the other hand, indicates a change of focus either from one actor to another or from one type of activity to another (for example, a change from an action by an actor to an act of speech by the same actor). a^{2}lũ^{1}ai^{2}li^2 an^{3}nu^{2}la^2 xwã^{3}sxã^3 e^{3}sĩn^{1}na^{2}hẽ^{3}ra^2 xna^{2}ha^{1}te^1 xã^{3}yo^{3}li^{3}kix^{3}tu^{1}wi^1 ('tapir-that kill-after arriving told-us-past then eat-we-future-quote') 'After killing the tapir he arrived and told us. Then, 'Let's go there and eat it', [we said].'

On a higher level still is found linkage for theme, which is the major concern of this paper.

THEMATIC LINKAGE

Each narrative has at least one theme. The entire narrative can be considered to have an underlying structure which is representable by a tree. The narrative has a global theme, and subtrees within it can have local themes of their own. Each subtree can be further broken down into subtrees which are actually paragraphs.

-jut^3 is the base form of the main thematic link. It occurs with up to three orders of prefixes and up to four orders of suffixes. The central meaning of -jut^3 is theme reference. Delimiting factors are supplied by the affixes.

Prefixes

From the stem -jut^3 outward the following prefixes occur.

Person

There are two series of person markers corresponding to subject and object. These are identical in form to the obligatory verb person suffixes. They provide identification with a previously mentioned event. If, for example, the previous event was focusing on a first person theme, -jut^3 would always occur with the first person marker when referring to that theme.

Normally the subject series occurs. If, however, an object pronoun is used to refer to the theme in the verb immediately preceding an occurrence of -*jut*^{3}, the person marker prefixed to -*jut*^{3} will reflect it *hãi*^{1}*xn*^{3}*ti*^{3}*xã*^{1} *ya*^{2}*lun*^{1}*txi*^{3} *hxan*^{3}*ki*^{2}*sa*^{3}*na*^{2}*hẽ*^{3}*ra*^{2} *jã*^{1}*xne*^{3}*sa*^{2}*ju*^{3}*kxai*^{3}*lhu*^{2}... ('all dying disappeared-from-me-object-past again-thus-me-object-theme...') 'Every one, dying disappeared from me. Again thus with me, my situation...'

Subject person markers are first singular *na*^{1}-, second singular *nĩn*^{1}-, third singular zero. Plurals are prefixed to the corresponding singular forms. The first plural is *sĩn*^{1}-, second plural *lxi*^{3}-, third person plural *ain*^{1}-; there is also a second dual *yah*^{3}-. Object person markers are first singular *sa*^{3}-, second singular *xna*^{2}-, third person zero. The plurals immediately follow the corresponding singular object forms. The first plural is *sĩn*^{1}-, second plural *lxi*^{3}-, third person plural *ain*^{1}-, as with the subject markers; but there is no second person dual.

In an autobiographical text by one of my informants we have the following examples, which are cited in reverse sequence from the order in which they occur in the text. Each of these sentences refers to the local theme, which is enunciated at the beginning of Sentence 3 and repeated in the same sentence. They are the only ones in that part of the text in which a first person -*jut*^{3} is found. Therefore we conclude that each occurrence of -*jut*^{3} refers back to the local theme of 'my early past'.

Sentence 14. *jã*^{1}*xne*^{3}*na*^{1}*ju*^{3}*kai*^{3}*la*^{1} *txa*^{2}*si*^{3}*ton*^{1}*yau*^{3}*xna*^{1}*hi*^{1}*nu*^{1}*tai*^{2}*kxai*^{3}*la*^{1} *kox*^{3}*nha*^{2}*tet*^{2}*txã*^{3}*wa*^{2} ('Again-I-theme my-past-child-dwelt-when-remote-past know-not-I') 'Again this my theme, about the time when I was a child I don't know first hand.'

Sentence 11. jã^{1}xne^{3}na^{1}jut^{3}su^2 ãin^{2}txi^{3}sa^{2}hxai^{2}hẽ^{1}ra^2 ('Again-I-theme sad-me-past tense') 'Again this my theme, I was sad.'

Sentence 9. jã^{1}xne^{3}na^{1}ju^{3}kai^{3}la^1 kat^{3}ja^{3}la^2 xwã^{2}ãn^{3}tsi^{3}xwe^{3}yah^{3}lxi^{1}nhi^{1}ni^2 xne^2 ã^{2}nu^{2}la^3 xĩ^{3}ton^{3}sxã^3 ya^{3}lu^{2}xãn^{3}tsi^{3}xwe^{3}san^{3}tã^1 xne^{3}hxai^{2}na^{1}hẽ^{1}ra^2 ('Again-I-theme whiteman arrive-begin-you pl. thus people sickened died-began-deduction thus-it always was') 'Again this my theme, when you white men began to come, thus the people began to sicken and die.'

Sentence 3. txa^{2}si^{3}kxã^{3}xna^{3}u^{1}thi^{3}nãn^{2}tu^3 kãx^{3}nhĩ^{1}nu^{1}tai^{3}nãn^{2}tu^3 txa^{2}si^{3}don^{1}xyau^{3}na^{1}tãu^{3}u^{1}tai^{2}nãn^{2}tu^3 xĩh^{1}te^{2}sa^{1}wa^2 ('My-past-time-remote long ago-remote my-past-childhood-long ago was-I-know') 'My early past, long ago, my childhood days were thus, I know.'

In the same section of text we have -jut^3 occurring with third person in one instance. The theme in this case is a third person referent, the story itself. And the only reference made to it is in Sentence 12. As shown in the example, reference goes back to where the third person theme is introduced at the beginning of the text:

Sentence 12. jã^{1}xne^{3}jut^{3}su^2 xĩ^{3}ye^{3}a^{1}tu^{1}wa^2 ('Again-theme speak-I-future') 'Again this theme, I will speak.'

Sentences 1 and 2. xĩ^{3}ye^{3}a^{1}tu^{1}wa^2. ain^{3}ki^{2}sa^{2}hẽ^{1}ra^2. ('Speak-I-future. Listen-me-imperative.') 'I will speak. Listen to me.'

Pro-verbs

The pro-verb xne^3- 'thus' provides additional reference to the previously mentioned theme. It always occurs immediately preceding the person marker: jã^{1}xne^3-na^{1}jut^{3}su^2 ('Again-thus-I-theme') 'Again thus my theme.' Pro-verb in this paper is used in much the same way that the verb do is used in English, as in I like ice cream, don't you? It differs from other verbs in that it cannot have the prefixes found on verbs.

Occurrences of other verb stems with -jut^3 are very infrequent. Since -jut^3 refers to a theme, it is rarely possible to insert a verb stem in this position. An example where this does occur is: xne^{3}sa^{2}jut^{3}su^2 ã^{3}ye^{3}a^{1}jut^{3}su^2... ('Thus-me-theme see-I-theme...') 'The event being thus, I seeing the event...' In this case the narrator is giving the proof of his story by emphasizing that he had seen it.

Repetition

The repetition indicator jã^1- occurs in the third position before -jut^3. It refers back to an event that is part of a theme already mentioned. This reminds the hearer that the event is in progress. jã^1- informs the hearer that the event it goes with is the same as one already given, not a different event of the same kind. xĩ^{3}yai^{3}na^{1}hẽ^{3}ra^2 jã^{1}xne^{3}jut^{3}su^2 xĩ^{3}yai^{3}na^{1}hẽ^{3}ra^2 ('Eat-I-past again-theme eat-I-past') 'I ate, again referring to that previous occasion, I ate.' xĩ^{3}yai^{3}na^{1}hẽ^{3}ra^2 xnẽ^{3}jut^{3}su^2 xĩ^{3}yai^{3}na^{1}hẽ^{3}ra^2 ('Eat-I-past thus-theme eat-I-past') 'I ate. Thus referring to that previous occasion, I ate.' In the first example jã^3- indicates that it is the same action in both verbs. In the second example, however, eating occurred on two occasions. The first instance where jã^1- does not occur in the text mentioned comes in Sentence 23; the speaker up to there is discussing a single situation using many linked sentences to do it. In 23, however, we find only na^{1}jut^{3}kxai^{3}la^1 ('I-theme-nominal'). Following this form the narrator tells a specific incident relating to the continuing theme of the narrator's past. By omitting jã^1- he makes a fresh start and gives new information though the new incident is by no means unrelated to the situation already described.

Prefixes thus inform the listener as to the person of the theme and as to how the action is progressing.

Suffixes

From the stem outward the following suffixes occur.

-nũ^3

-nũ^3 follows -jut^3 directly. It signifies an addition to present information similar to the English also. jã^{1}xna^{1}jut^{3}tũ^{3}kxai^{3}la^1 ('again-thus-I-theme-also-nominal') 'also I on the same theme'.

-ai^2

-ai^2 is in the second position following -jut^3. It refers to remote past time, setting the theme into the past and emphasizing the earliest aspects of the theme. jut^{1}tai^{2}kxai^{3}lhu^2 ('theme-past-nominal') 'About-that-time-earlier-in-time'.

-kxai^{3}lhu^2 and -su^2

-kxai^{3}lhu^2 and -su^2 are endings of the third position after -jut^3. They are normally found on nouns as stem formatives as in *sxi^{2}su^2* 'house' and *in^{3}txa^{2}kxai^{3}lhu^2* 'man'. They imply that a subtree in the development of the theme may be terminated with the next sentence, which is normally a summarizer.

-*la^1*

-*la^1* is also in the third position after -*jut^3*, and therefore mutually exclusive with -*kxai^{3}lhu^2* and -*su^2*. It indicates that there is more to come on the same theme.

-*ta^{3}la^3*

-*ta^{3}la^3* is a negative when it occurs on nouns. Its use here, however, is limited to occurrences correlative with an immediately following connective form *na^{2}ha^{2}kxai^3* which together have the literal meaning 'not, therefore then'. Idiomatically it signifies the completion of one theme and presupposes a new theme immediately following. It does not cooccur with other suffixes.

GLOBAL VS. LOCAL THEMES

One can think of narrative themes as being global or local in scope. A global theme is the overall theme for the entire narrative. Local themes are those which are in force for only a part of the narrative before giving way to a new local theme or returning to the global theme. The global theme constitutes the hierarchical framework of the narrative in its entirety, and subtrees within it join to make up the substructure of the narrative.

Frequently the global theme of the narrative is given in one of the first two sentences. A subsection of the narrative tree, however, may also be introduced immediately afterwards with its own local theme. It is usually accompanied by a temporal setting and a possible locational setting. These settings occur as free temporal phrases or free locative phrases elsewhere in the theme sentence.

The theme of this subtree remains in force as long as a single temporal or logical sequence is being followed. When, however, a break occurs, the narrator must inform his listener as to which theme he will be talking about and as to which theme he has been talking about in the immediate context.

Continuation of the same sequence is signalled by means of -la^1 as previously described. When -la^1 is not used the preceding local theme is taken as summarized by the event just narrated. A frequent occurrence of this is found when the narrator gives his own reactions to events as a logical sequel to them in the development of the theme. xne^{3}jut^{3}su^2 ãin^{2}txi^{3}sa^{2}hxai^{2}hẽ^{1}ra^2 ('Thus-theme-referent sad-me-past') 'The situation being like that, I was sad.'

A theme may continue on with several occurrences of -la^1. There is no apparent limit on the number of times -la^1 may occur; but something new is added to the story after every occurrence. A sequence thus expands the theme by giving more details in the second telling. In such a case, jã^{1}xne^2- signals that it is a retelling of the same sequence. However, reference back to the narrative theme by means of -jut^3 can be made only at the end of the telling of an event. Thematic links pointing to a different theme, either global or local, are signaled by the person markers (unambiguously marked only if one is third person and the other first person), and in the repetition of the verb that was used to introduce the theme in its first occurrence.

The theme of a new subtree is introduced only after the old subtree has been closed off by $\underline{\text{jut}^1\text{ta}^3\text{la}^3}$ 'event referent, negative'. When this has been signaled a new local theme will be developed in the same manner as the first one was.

Once all local themes have been discussed, $\underline{\text{-jut}^3}$ is not required to refer back to previous themes in a final summary. A specific time reference of identical form to the one used for the introduction of a theme is all that is required.

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